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BPA

architectural & engineering NEWS

Tony Palladino's cover this month is a symbolic representation of the new steels, subject of an article on page 12 in this issue.

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MAIL

A/E News welcomes the opinions of its readers. Letters should be addressed to: Editor, Architectural and Engineering News, 500 Bloomfield Ave., Montclair, N. J.

Philadelphia plan

TO THE EDITOR:

. . . I thought the article on Philadelphia in the April issue a most excellent presentation in capsule form of many of the key points of our plan.

I also enjoyed reading the profile which you did of me. Of course, such a profile is inevitably subjective and, as you may have imagined, surprised me in certain ways.

There is one thing I would like to have very clear.

I assert that the successful rebuilding of Philadelphia *is* due politically to Democratic Mayors Clark and Dilworth.

In this connection I say *"yes, and;"* not *"yes, but."* It is true, and I am sure that both Senator Clark and Mayor Dilworth will agree, that the tremendous achievements are not the results of a single factor, that they are in fact the results of the interaction between community leaders, governmental leaders and broad community sentiment which is developed to a very high degree here and which they had a major part in bringing about. However, I wish to assert with all the force at my command that it would not have been successful except for the remarkable and extraordinary personal leadership of both Senator Clark and Mayor Dilworth.

Thanks again for your fine work.

Edmund N. Bacon
Executive Director
City Planning Commission
Philadelphia, Pa.

GAZETTE

President Kennedy has nominated Major General Walter K. Wilson, Jr., as chief of the Army Corps of Engineers. The President also nominated him for promotion to the temporary rank of Lieutenant General. General Wilson, who will succeed retiring General Emerson C. Itschner, is presently commander of the Engineers Center, Fort Belvoir, Va.

John T. Carroll has been appointed Commissioner of Borough Works in the office of the Manhattan Borough President. Carroll is a director of the Municipal Engineers of the City of New York and was formerly Consulting Engineer to the Borough President.

Ned A. Cole, architect of Austin, Texas, has been appointed to the new position of Vice President—Research and Design for Crawford Corp., Baton Rouge, La.

GAZETTE

Harold G. Lewis has been elected president of the American Institute of Steel Construction. Lewis is also president of Flint Steel Corp. and serves on the board of directors of several other steel organizations. Lewis succeeds the late James M. Straub.

Miss Elizabeth Kempton has been appointed Deputy Director of Public Information for Community Relations of the New York City Housing and Redevelopment Board. Miss Kempton was formerly with the Urban Renewal Board of that city.

Thomas R. Camp, chairman, American Sanitary Engineering Intersociety Board, announces the appointment of Thomas R. Glenn, Jr., as executive secretary and the transfer of the office of the Board to 117 Benner St., Highland Park, N. J.

Oscar S. Bray, President of Jackson & Moreland International, Engineering Specialists with headquarters in Boston, announced the election of Robert V. Howley as a director.

Hueston M. Smith, St. Louis, was honored recently with a "Certification of Merit" from the City of New Orleans in recognition of his work.

OFFICE ANNOUNCEMENTS

Paul G. Fleck, Civil Engineer, was elected to the board of directors of Albert Kahn Associated, Architects and Engineers, Inc., at a recent stockholders' meeting.

T. Y. Lin & Associates, Los Angeles, consulting structural engineers, announce the establishment of a San Francisco office headed by Felix Kulka, an Associate of the firm.

Ben H. O'Conner, AIA, and Maynard D. Houston, AIA, have been admitted to the firm of Charles Luckman Associates of Los Angeles and New York.

Robert M. King, AIA, and Don L. Yinger, AIA, announce formation of the partnership of King & Yinger, AIA, Architects, with offices in the United California Bank Building, Second and Main Sts., Pomona, Calif.

Upshur and Riley, AIA, architects-engineers, of Columbia, S. C., announce change of the firm name to Upshur, Riley and Bultman, AIA, architects-engineers.

Victor P. Santoro has been appointed Associate Member of the firm of Throop and Feiden, consulting structural engineers.

Joseph Ceruti and Associates, architects, of Cleveland, announce changing of the firm's name to Ceruti-Febo and Associates.

FORECAST

METALS OUTLOOK

The following review is based on special reports prepared for A/E NEWS by the Copper and Brass Research Association, the American Institute of Steel Construction, the Committee of Stainless Steel Producers of the American Iron and Steel Institute, and Reynolds Metals Company.

Aluminum

Aluminum, because of its light weight and its resistance to corrosion, found its original widespread application in architecture as a facing material. Its use in this manner has risen sharply over the past six years, not only as a facing material on new high rise structures but also as a *re*-facing material for older buildings such as department stores and banks, whose life span is not yet over but to which fashion and other considerations dictate donning of a new coat.

Use as facing is being supplemented by new uses as a load bearing material, as a result of improved manufacturing methods developed since the end of World War II. As such, it is generally used in the form of a laminated panel, where a section $^{15}/_{16}$" thick has been tested to 10,960 lbs. Increasing its depth would naturally increase its strength progressively. Sandwich panels with an aluminum facing are being used to meet the quadruple problem of insulation, structural strength, light weight and weathering. In this respect they have appeared as a wall and a roofing material, obviating addition of built-up roofing. Their use is expected to increase in this field.

A much wider selection of colors is expected as a result of anodizing progress being made. Color will be improved more through use of alloys, with a decreasing dependence on dyes.

Another recent advance is a way to pre-finish aluminum window components; this would improve color constancy of completed windows. New joining methods permit prefinishing and produce window corners that are waterproof and serve as construction joints.

Copper and allied metals

These metals include coppers, brasses, bronzes and nickel silvers. Their use is expected to rise in the years ahead because of a search for warmer facing materials. They lend themselves to a wide variety of finishes through mechanical or chemical treatment of their surfaces. Modern brass mill equipment permits volume production by rolling, extruding, shape rolling or drawing, or by combinations of these processes, making the metals available in a large variety of forms and shapes.

New developments under study by the Copper Products Development Association include a project aiming at a tarnish-resistant copper through metallurgical surface treatment. Another project covers evaluation of clear protective coatings for copper-base alloys. If a tarnish-resistant copper is attained, and improved coatings developed, a wide broadening of markets for these metals is expected, including such areas as builder's hardware, which now consumes an estimated 35 million pounds of wrought brass mill products each year. An article on copper and bronze finishes appears on page 65.

Stainless steel

Stainless steel producers consider the building industry one of the most important markets for this metal, whose principal advantages are its strength and its resistance to corrosion. Shipments to the industry from mills and steel service centers during 1960 increased 30 per cent over 1959, continuing a ten-year upward trend. This trend is expected to continue.

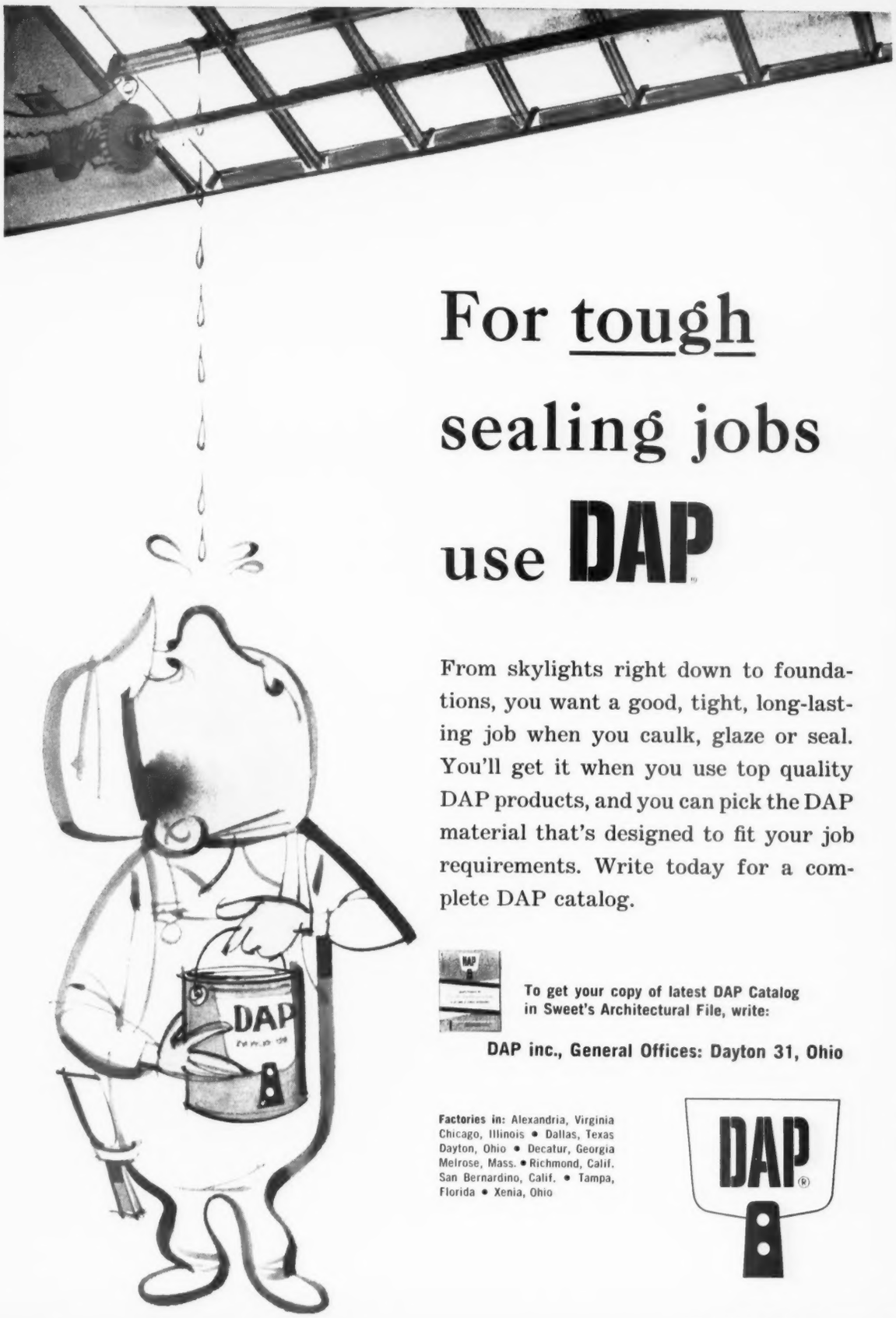
Producers attribute this to three causes. First is a joint effort by producers, architects and fabricators towards a better utilization of economical forming techniques, for instance roll-forming. Second is the metal's durability and the ease with which it is cleaned. This is claimed as an important factor in these days of rising maintenance costs. Condition of the Chrysler Building tower and the Empire State Building mullions, where the metal was used, is said to be excellent. Third is the development of new finishes and textures. Progress involves not only natural finishes but also the use of color-coated stainless steels in various shades. As regard texture, fresh applications are said to be in the offing due to the increased stiffness produced by patterns in the panel, permitting a thinner gauge. Any initial premium in the cost of stainless is said to be amortized in due course by its strength and durability.

Structural steel

Foremost among new developments in structural steel is the introduction of the new *high strength* steels, combined with increasing use of plastic—as opposed to elastic—design. A detailed discussion of the properties and implications of these new steels will be found in a special article on page 12. New advances in strength entail new procedures and techniques of fabrication, as well as changes in forming and welding practices. One important development in this direction is introduction of the new closed vacuum furnaces, which ensure a higher degree of control as well as removing from the molten metal assorted impurities. These have tended to remain in steel treated in the open air furnaces. As regards strength, the latest step of architectural interest involves the ASTM A36 structural carbon steels, which are about midway between the standard A7's (min. yield point 33,000 psi) and the high strength A242's, A440's and A441's (min. yield point 50,000 psi). A36 is said to offer substantial erected cost savings when correctly used, and its weldability precludes limitations of joints and configuration.

Addition to steel of relatively small amounts of columbium, a metal possessing very high strength at high temperatures when alloyed, provides increased strength at small cost in the form of sheets and strip, light gauge plates and bar-size shapes. Research is being done aimed at ever higher strengths, but in order to meet the criteria of producibility, quality and cost, they are obviously not yet available commercially. A 240,000 psi yield strength appears to be the practical limit attainable by conventional heat treatment methods as they are known today. Scaling, uniformity of quenching action and related problems become extreme in the treatment of "structures" of any size. However, a process known as "precipitation hardening" is known. This process, applied to a part *after* it is fabricated in its annealed conditions—when it is relatively soft—achieves very high strength levels.

Research is also being done into the behavior of steels in extreme cold, a field known as cryogenics. In addition, lighter rolled sections are being made available in the various beam sizes.



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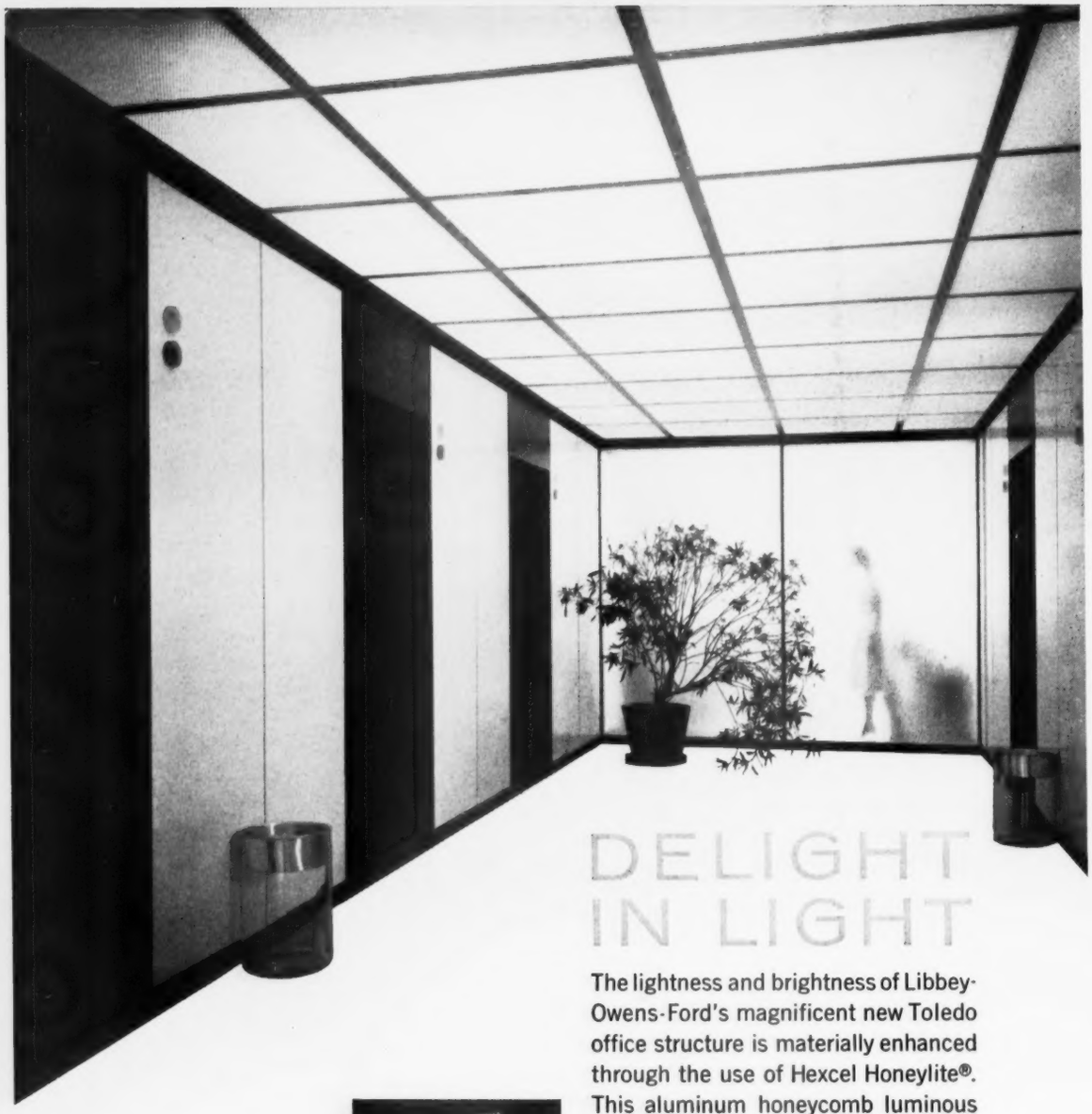

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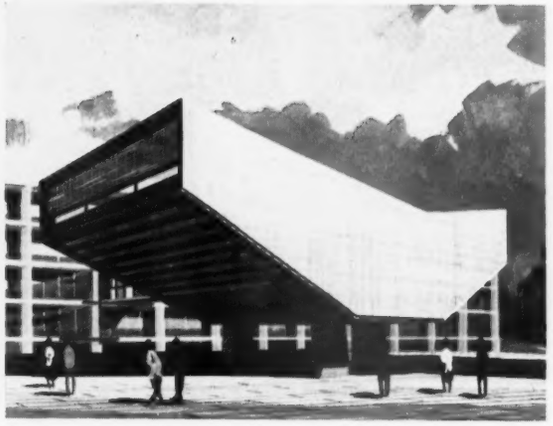

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1. Model photograph shows 12-story office building and restaurant, first phase of a $20 million complex to be known as McCulloch Center, located across from the entrance to Los Angeles International Airport. Architects are Welton Becket and Associates.

2. Drawing of a new 28-story office building for downtown Baltimore. Construction is scheduled to begin in August. Architect is Vincent G. Kling, FAIA.

3. This $50 million urban redevelopment project for Pittsburgh is located directly across the Allegheny River from the Golden Triangle. It will feature a series of aluminum apartment buildings, town houses, a shopping center and an underground parking garage for 2,000 cars. Deeter and Ritchey are the architects.

4. Begrisch Hall, containing two teaching auditoriums, is now under construction on the Bronx campus of New York University. Architect is Marcel Breuer and Associates.

5. Ten-story plus penthouse and basement dormitory for women students at University Hospital, Philadelphia. The building, designed along the principles of modular coordination, is scheduled for completion in March 1962. Nolen and Swinburne are the architects.

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At a formal dinner winding up the Columbia University series entitled "The Next Phase in Architecture," Dr. Jacques Barzun, Dean of the Faculties and Provost, speaking as a layman, called for a combination of function and fancy in the architecture of tomorrow. In a speech entitled "The Architect and the Intellectual Aspirations of His Day," Dr. Barzun warned against underestimating the value of the emotions as stimuli to artistic creation; ideas and concepts, he said, have never produced great art unless stimulated in this manner. He spoke at a dinner entitled "Homage to the Great Makers"; however, of the three alive today, Ludwig Mies van der Rohe was not well enough to attend, Walter Gropius was in Rome and Le Corbusier had already returned to Paris shortly after receiving the Gold Medal of the AIA at its annual convention in Philadelphia. Morris Ketchum, FAIA, and Robert W. Cutler, FAIA, president of the New York Architectural League, also spoke. Chairman of the evening was Frederick J. Woodbridge, FAIA, president of the New York chapter, AIA.

ASCE

G. Brooks Earnest was named the official nominee for 1962 president of the American Society of Civil Engineers at the Society's recent convention in Phoenix. Voting will be by mail ballot this summer, and the new president will take office at the annual convention of the Society in New York this October. Dr. Earnest is president of Fenn College in Cleveland and will succeed Glenn W. Holcomb, who is also Head of the Department of Civil Engineering at Oregon State College. The 1961 award for the outstanding civil engineering achievement of the year was presented recently to New York International Airport. S. Sloan Colt, chairman of the Port of New York Authority and operator of the

(Continued on page 10)

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1. New Livestock Coliseum for the State of Mississippi will be completed in March 1962. Facing consists of about 1,900 yellow and orange porcelain steel veneer panels. Architects are Jones and Haas of Jackson.

2. All-steel dome at Wood River, Ill., houses a regional tank car repair plant of the Union Tank Car Co. The dome, which is based on the geodesic design principles of R. Buckminster Fuller, is 380' across and 120' high. It is said to be the largest structure in the world to be built from the top down. It was raised pneumatically by means of an air-inflated nylon bag as construction progressed.

3. Rendering of a new five-story office building now under construction at Stamford, Conn. The building features an aluminum curtain wall with vertical gold colored mullions, black spandrels and heat absorbent glass. Architects are Sherwood, Mills and Smith.

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(Continued from page 9)

airport, received the award from ASCE President Holcomb.

Dr. Bates on Russia

ASTM and ASCE in conjunction with the Concrete Industry Board, Inc. of New York recently presented a talk by A. Allan Bates, president of ASTM, on the subject of construction methods being used in the Soviet Union. Reinforced concrete is employed throughout, in the form of large prefabricated units manufactured in about 2,500 automated factories situated throughout the country. Work on the site is said to be minimal, being limited to assembly by crews consisting of a crane operator, a foreman, and two helpers. Prefabricated reinforced concrete units, often including a complete two room apartment with kitchen and bathroom, are loaded on trains and trucks and transported up to 100 miles to the site. They are then put in place much in the manner of shoe boxes to form the building. Reinforced concrete is used chiefly because its components are readily available locally.

Construction is characterized by extreme standardization, and entirely identical blocks of apartments are sometimes erected in groups of 20 to 30 at a time, making for a large degree of monotony. Many of the techniques used in Russia are said to have been "borrowed" from France and the Scandinavian countries, Dr. Bates said. Some variety in facades has been added by the factory application of tile, but this has tended to peel off in large quantities; more durable methods of application have, however, recently been put into effect. The speaker stated that urban homes have been provided for 25 million people in the last 2½ years. Quantity required has often occurred at the expense of quality, but housing of this type has often meant an improvement from previous standards for many families. Dr. Bates recently returned from a trip to Russia and has been speaking to groups throughout the country.

CEC

The 1961 Annual Meeting of the Consulting Engineer's Council was held early in May in Chicago. Special attention was devoted to the question of corporate practice, as well as to topics such as professional liability insurance, competitive bidding and the concept of private enterprise. Awards were presented to nine manufacturers and three trade associations for publishing "outstanding product literature directed to the consulting engineer." The award winners ranked first in a new competition sponsored by the Joint Committee of CEC and the Producers' Council.

Farewell, efflorescence

Elimination of efflorescence is the object of a research project at the Southern California Laboratories of the Stanford Research Institute. Progress of research to date has reduced this unsightly phenomenon of brick masonry to a large degree by "immobilizing" the offending sulfate ions and converting them into insoluble forms by adding certain chemicals. Further investigation is aimed at producing an additive or process which will either fix or "immobilize" these sulfate ions.

Modular coordination in schools

The aim of a current study at the Cupertino Union school district near San Francisco is to allow selection of a minimum number of coordinated building product sizes and still permit maximum design freedom. The school district has received a grant of $12,750 from Educational Facilities Laboratories, a branch of the Ford Foundation, for the study. Ezra Ehrenkrantz, AIA, assistant research architect at the University of California at Berkeley, who has done much work in the field of modular coordination, is a consultant for the project.

Ultrasonics at Lincoln Square

Ultrasonic testing methods are being used to check structural steel girders at the new Philharmonic Hall, at the suggestion of Amman and Whitney, consulting engineers, of New York. A Sperry ultrasonic reflectoscope generates high frequency mechanical vibrations and sends then in a pulsed beam through the parts to be tested. Any discontinuity is reflected back to the instrument. The size and position of reflecting areas appear on the viewing screen of a cathode-ray tube. Ultrasonic testing replaced X-ray inspection called for originally.

Anti-sonics at Grand Central

In order to prevent railroad rumble from being transmitted to the frame of the new Pan Am Building, a complicated structural plan has been developed by James Ruderman, the structural engineer. For new columns which pierce the track levels, passenger platforms and pedestrian walkways, special vibration pads have been

inserted under the column grillages. These pads consist of lead, steel and asbestos. Old columns emerging from the train room are being shorn off, burnt down to street grade, ground smooth and fitted with a vibration pad. New columns are then connected. Girders designed for lateral bracing of new columns penetrating track levels have had to avoid any contact with existing columns. So as to bypass these existing columns, a network of diagonal knee bracing, branching out from each new column, will end in a collar arrangement around an old column. Tracing the resulting complex of angular girder runs has proved a diversion for homing commuters.

Fallout shelter at Albany

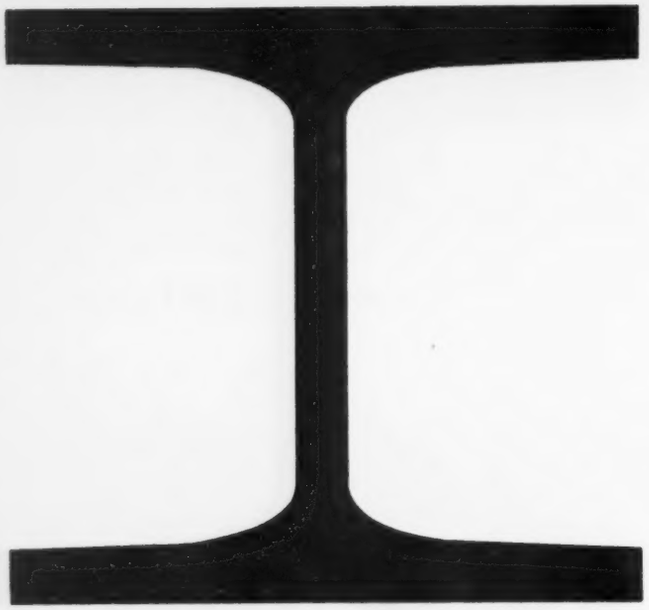
A fallout shelter was recently completed under the New York State Capitol to demonstrate use of the shielding properties of an existing structure for protection against radiation. The building was completed in the 1870's and has a massive foundation. The shelter was designed to accommodate 1100 people, with provision for food, water and air supply for two weeks.

Corporate practice

A bill permitting the practice of engineering by a corporation was recently passed by the Washington State legislature. Such a corporation must retain a registered engineer as its representative on engineering matters. The bill had widespread opposition on the part of consulting engineers in the State, who said that under this statute persons or firms who could not otherwise qualify to practice could now do so by incorporating and hiring a registered engineer. In a related development, the Attorney General of Texas held that it is permissible for a corporation organized to practice engineering to use the title "engineering company" even if its incorporators and members are not registered.

Reynolds and urban renewal

Reynolds Aluminum Co. has set up a subsidiary to sponsor urban renewal projects in six cities. The subsidiary, known as the Reynolds Aluminum Service Corp., has as its executive vice president Albert M. Cole, formerly administrator of the Housing and Home Finance Agency. It will provide Reynolds with the opportunity for "expansion of its corporate image" in the public eye, according to Mr. Cole. The six cities are Cincinnati, Kansas City (Mo. and Kan.), Philadelphia, Richmond and Washington.



THE NEW STEELS THEIR PROPERTIES AND APPLICATIONS

by Daniel M. McGee, PE

The new higher strength steels, whose use has been limited by rigid building codes to essentially non-architectural applications, are now beginning on a widening front to enter the realm of construction, where their salient properties are finding increasing recognition. In the following article the author, a Regional Engineer in the American Institute of Steel Construction, discusses the properties of the new steels and their implications for structural engineers and architects.

In the last few years there has been a considerable upsurge in the discussion and use of "new" high strength steels in building and bridge construction. Like so many things born thirty years too soon, many of the high strength steels have been in existence for quite some time. Unfortunately, designers have been relatively reluctant to use these new steels. This was partly because the burden of revising rigid building codes and specifications fell on the engineer who attempted to utilize something out of the ordinary.

The first of the high strength steels was introduced back in 1933 and is basically what is today designated as ASTM A242, having a yield point of 50,000 psi. This material did not remain on the shelf all these years. It was used to great advantage by design engineers, who were not restricted by code provisions in their sphere of material selection, and who were interested in reducing the dead weight of structures.

Corrosion

Aside from their higher strength, another attribute which greatly encouraged the use of these original high strength steels was their greater degree of resistance to atmospheric corrosion. They had approximately twice the resistance to atmospheric corrosion that structural carbon steel has. In the past years, the largest single field of application was in the construction of transportation equipment, notably railroad freight cars, passenger cars, trucks, trailers and buses. Other uses have been in the construction of towers, boom cranes, portable military bridges, canal locks, furnace bodies, shipping containers and innumerable other ingenious applications. Gradually, as the weight-savings and maintenance reducing advantages of the original high strength steel became more widely recognized and used, particularly in bridges, changes in building codes began to occur. This opened the door for the development and introduction of five new structural grades of steel. This was followed by the testing, approval and issuance of an ASTM designation for four of these steels assuring engineers and architects of absolute uniformity of composition of the material they selected irrespective of the producer. ASTM Specifications for the heat treated structural steel is presently under consideration.

Table 1 lists the primary use of the five new steels available for constructional purposes, in addition to A7 and A242 which have been in use for a good many years, and gives their primary use.

Three groups

The six structural steels shown in *Table 1* may be separated into three major groups, first the carbon steels consisting of A7, A373 and A36; secondly the high strength steels consisting of A440, A441 and A242; and lastly the super strength heat treated steels.

In the first group of steels mentioned above, the carbon steels, it is expected that the use of A36 will eventually exceed the use of the other two carbon steels together. Its higher yield strength, 9 per cent higher than A7, and 12 per cent higher than A373, permits the use of higher allowable design stresses with a consequent saving of material. The chemical requirements of A36 have been patterned very closely to those of A373, the steel generally specified for welded bridges, hence giving the A36 similar good characteristics.

It is quite obvious to see then why this one carbon steel, A36, with characteristics similar to or better than the other two carbon steels will soon become the base material from which all cost estimates will be made. The chemical requirements and minimum mechanical properties required by the ASTM Specification for these carbon steels are compared in *Tables 2A and 2B*.

In the second group of steels mentioned above namely, A440, A441 and A242 no one steel stands out so dominantly as did the the A36 in the carbon group. These three high strength steels have the same mechanical properties, hence, the selection of the one to use depends on extenuating circumstances concerning how and where it is to be used.

The A440 material is the most economical of the low alloy steels and is recommended primarily for use in riveted or bolted structures. It may, however, be used for welded structures under controlled welding conditions.

The A441 material is specifically recommended for welded structures. Its chemical composition is controlled to afford excellent weldability characteristics. The impact properties of A441 are also better than those of A440.

A242

The last, but oldest of this group is the A242. This steel is recommended

for use in either riveted, bolted or welded structures, which will be subjected to atmospheric corrosion and whose resistance to corrosion is of prime importance. The ASTM Specification for this steel has an open provision permitting the inclusion of alloying elements which materially enhance the steel's resistance to atmospheric corrosion.

As an example, the first application of this novel characteristic of a high-strength steel such as A242 Steel in building construction will be in the John Deere and Co. office building to be built in Moline, Ill. Eero Saarinen and Associates, architects for the building, used exposed exterior steel columns and beams for this eight-story building. The steel will be left in the uncoated condition. In this instance the architects chose to use the deep russet-brown color of the corrosion resistant high-strength steel and the bold lines of steel in the architectural treatment of the exterior of the building.

Actually, all three of the low alloy steels offer good atmospheric corrosion resistance. The A440 and the A441 steel have a resistance to atmospheric corrosion approximately twice that of ordinary carbon steel and the A242 steel has a resistance to corrosion of from four to six times that of the carbon steel depending on the alloying elements added by the manufacturer. Architects and engineers selecting this material (A242) for a particular use where welding of the material will be involved, should always check with the manufacturer to ascertain if the weldability of the material has been affected by the inclusion of any special elements to increase the materials corrosive resistance.

Table 3 shows the basic chemical requirements and the mechanical properties of the low alloy, high strength steels. For the permissible percentages of alloying elements refer to the particular ASTM Specification for the material.

The last group of steels, the super strength heat-treated alloy steels are the newest addition to the family of constructional steels. None of these steels as yet has been given an ASTM designation or requirement of minimum or maximum chemical or mechanical properties. The primary reason for this is that most super strength steels are proprietary products of a particular manufacturer each

(*Continued on page 14*)

THE NEW STEELS

(Continued from page 13)

TABLE 1

THE FAMILY OF CONSTRUCTIONAL STEELS

ASTM Designation Or Other	Year of Issuance of First ASTM	Primary Construction Use
A7	1936	Presently most used material for structional plates and shapes in constructing buildings and bridges.
A373	1954	Developed primarily for use in construction of welded bridges. ASTM stipulates maximum percentages for carbon and manganese to increase weldability.
A36	1960	Developed for use in buildings, bridges and general uses similar to A7 with advantage of a higher yield strength. ASTM specification stipulates control of carbon and manganese as with A373 steel giving it similar weldability characteristics. A36 can advantageously replace both A7 and A373.
A440	1959	High strength, low alloy steel for riveted or bolted structures where weight saving is important. Atmospheric corrosion resistance of this material is twice that of structural carbon steel.
A441	1960	High strength, low alloy steel for welded structures where weight savings is important. Atmospheric corrosion resistance of this material is twice that of structural carbon steel. Excellent impact properties.
A242	1941	High strength, low alloy steel intended for use where atmospheric or other corrosion resistance is important. The ASTM specification has an open provision permitting the inclusion of alloying elements which will materially increase the steels corrosive resistance. This material is 4 to 6 times as corrosive resistant as structural carbon steel.
Heat Treated Alloy Steel	NONE	High strength, heat treated low alloy steel intended for use where high strength is required, and weight saving is important. This steel can be welded and offers atmospheric corrosion resistance four times that of structural carbon steel.

TABLE 3

COMPARISON OF BASIC CHEMICAL REQUIREMENTS AND MECHANICAL PROPERTIES OF HIGH STRENGTH STEELS

ASTM Designation	Chemical Requirements %		Yield Point Minimum psi		
	Carbon (Max.)	Manganese (Max.)	To ¾ in. Inc.	Over ¾ in. to 1½ in. Inc.	Over 1½ in. to 4 in. Inc.
A440	.28	1.60	50,000	46,000	42,000
A441	.22	1.25	50,000	46,000	42,000
A242	.22	1.25	50,000	46,000	42,000

TABLE 4

CHEMICAL AND MECHANICAL PROPERTIES OF HEAT TREATED ALLOY STEEL

NOTE: Properties vary with manufacturer.

Property	Material Thickness	
	5/16" to 2½"	2½" to 6½"
Yield Strength, psi	100,000	90,000
Tensile Strength, psi	115,000 to 135,000	105,000 to 135,000
Elongation, pct. (2 in. specimen)	18	16
Chemical Composition (%):		
Carbon	0.10 - 0.20	0.10 - 0.20
Manganese	0.60 - 1.00	0.60 - 1.00
Silicon	0.15 - 0.35	0.15 - 0.35

TABLE 2A

COMPARISON OF THE ASTM CHEMICAL REQUIREMENTS OF THE CARBON STEELS (%)

ASTM Designation	Elements Controlled	SHAPES	BARS		PLATES		
A7	Carbon maximum	—	—		—		
	Manganese.....	—	—		—		
	Silicon.....	—	—		—		
			¾" and Under	Over ¾" to 4"	¾" and Under	Over ¾" to 1½"	Over 1½" to 4"
A36	Carbon maximum	.28	.28	.28	.28	.28	.28
	Manganese.....	—	—	.60/.90	—	.80/1.10	.85/1.20
	Silicon.....	—	—	—	—	—	.15/.30

ASTM Designation	Elements Controlled	Other Than Group A	Group A Heavy W.F.	1" and Under	Over 1" to 4"	½" and Under	Over ½" to 1"	Over 1" to 2"	Over 2" to 4"
A373	Carbon maximum	.28	.28	.28	.28	.26	.25	.26	.27
	Manganese	—	.50/.90	—	.50/.90	—	.50/.90	.50/.90	.50/.90
	Silicon	—	—	—	—	—	—	.15/.30	.15/.30

Note: Group A comprises the following structural shapes as described in the AISC Manual of Steel Construction: wide flange beams in the following nominal sizes:

36 x 16½	30 x 15	21 x 13
36 x 12	30 x 10½	14 x 16
33 x 15¾	27 x 14	14 x 14½
33 x 11½	24 x 14	12 x 12
		10 x 10

TABLE 2B

COMPARISON OF MECHANICAL PROPERTIES OF THE CARBON STEELS

Property	A7	A373	A36
Yield Point, min. psi	33,000	32,000	36,000
Tensile Strength, psi: For shapes of all thicknesses	60,000 to 75,000	58,000 to 75,000	60,000 to 80,000
For plates and bars. Up to 1½ in., incl., in thickness, psi	60,000 to 72,000		
For plates and bars over 1½ in., in thickness, psi	60,000 to 75,000		
Elongation in 8 in. specimen min., per cent	21	21	20
Elongation in 2 in. specimen min., per cent	24	24	23

TABLE 5

PROPRIETARY NAMES UNDER WHICH VARIOUS STEELS ARE SOLD

ASTM or Other Designation	Major United States Producers				
	Bethlehem Steel Co.	Inland Steel Co.	Jones & Laughlin Steel Co.	Republic Steel Co.	United States Steel Corp.
ASTM A7, A373 and A36	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
ASTM A440	Medium Manganese	Hi-Man 440	None	"M"	Man-Ten
ASTM A441	Manganese Vanadium	Tri-Steel	None	Manganese Vanadium	Tri-Ten
ASTM A242	Mayari-R	Hi-Steel	Jalten	"50"	Cor-Ten
Heat Treated Constructional Alloy	None	None	Jalloy "S"	None	T-1

adhering to rigid chemical and mechanical requirements, but varying slightly with the manufacturer.

The heat treated steels are recommended for use where the combination of very high strength and weight reduction is important, such as in long span bridges, transmission towers, pressure vessels, power shovels and transportation equipment. The heat treated steels used in construction offer good weldability and their resistance to atmospheric corrosion is about four times better than structural carbon steel. The chemical and mechanical properties are shown in *Table 4*.

As of now, the heat treated steels are predominantly available as plates, bars, tubing and castings, however, one major producer has just announced that production of rolled shapes of heat treated steel has commenced.

Exotic names

Many of the steels just discussed are sold and widely advertised under special trade names to build a relationship between the material and the manufacturer, not to confuse the engineers and architects, as is the complaint of many. *Table 5* was set up to identify these exotic names in relation to the standard ASTM designation.

For engineers and architects to utilize these new materials properly, adequate design specifications must be available. Since 1921, the AISC has prepared and improved the specifications recommending the design stresses to be used in the design of buildings and bridges of the structural carbon steel A7.

The AISC in July 1960 issued a design specification recommending allowable working stresses to be used in the design of buildings and bridges of the structural carbon steel designated ASTM A36. These recommended design stresses and formulas are tabulated in *Table 6* along with those of A7 and the high strength, low alloy steels.

Since building officials and most code writing authorities have adopted the AISC design recommendations, engineers and architects may immediately start using the A36 carbon steel. Unfortunately, use of the high strength low alloy steels has been partly restrained due to the lack of adequate recommendations as to proper stresses to be used in designing with these materials. Many tests have been made on the high strength

(*Continued on page 16*)

(*Continued from page 15*)

steels and the AISC Committee on Specifications is holding numerous meetings to develop safe working stresses to be recommended for use in the design of buildings and bridges.

This lack of a formal AISC design specification has not prevented the use of these materials by experienced and thoughtful designers, using sound judgment and an adequate factor of safety.

Advantages

The advantages of utilizing high strength steels in building construction are many. The economy gained by using high strength steel for columns in office buildings varies almost directly with the increase in the strength of the steel if the l/r ratio is below 60. As the l/r ratio increases, less economy is obtained by using the high strength steels.

Dead and live loads accumulate in the columns of a building, so that maximum loads occur in columns supporting the lower floors, with a gradual reduction in load moving toward the upper floors. Therefore, would it not seem practical to use high strength low alloy steel for the columns of the lower floors and structural carbon steel for the columns in the upper floors?

The advantages of utilizing this concept in building construction are: *(1)* reduced weight of steel, *(2)* reduced cost of fabrication by utilizing same *size* columns of different *strengths*, and elimination of cover-plated columns. *(3)* lower transportation costs due to reduced weight of material, *(4)* increased usable floor space, and *(5)* reduced cost of fire proofing because column sizes are smaller, and *(6)* simplification of architectural details throughout the building.

These advantages were applied in the design of the 40 story United Insurance Co. Building now being erected in Chicago (*Figure 1*). The columns for the lower 23 stories are of A440 grade high strength steel and the columns for the upper stories are of A7 grade structural steel.

Another example of the current use of these high strength steels may be seen in the sixteen story office building to be constructed by the Standard Insurance Co. of Portland, Ore. It was reported that by utilizing A440 steel for the frame instead of the usual A7 the tonnage required for the building was reduced 20 per cent or about 560 tons. The greatest savings are in the columns where the weight of the columns was reduced 23 per cent. Use of the high strength material in girders and beams resulted in additional reduction of 19 per cent in the weight of these members. In designing this building, the structural engineers, Cooper & Rose of Portland, Ore. used a basic allowable design stress of 30,000 pounds per sq. in. This is 50 per cent higher than the 20,000 psi permitted for A7 structural steel. The primary benefit of utilizing the A440 steel in place of A7 in this building was a reduction in cost of approximately $80,000.

(*Continued on page 19*)

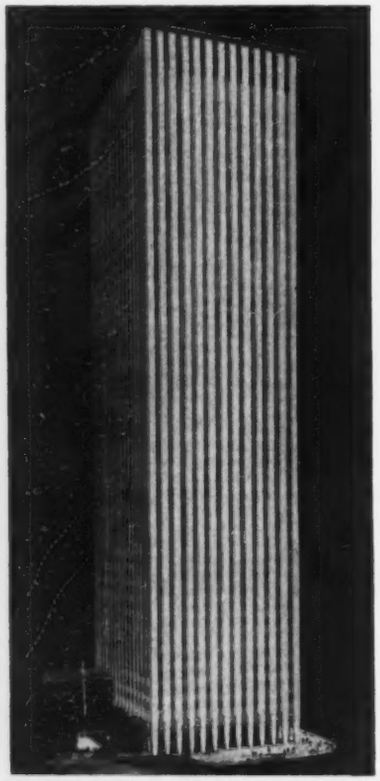


FIGURE 1. 40-story United Insurance Co. Bldg., Chicago using A7 and A440 steels.

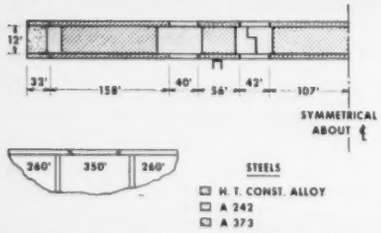


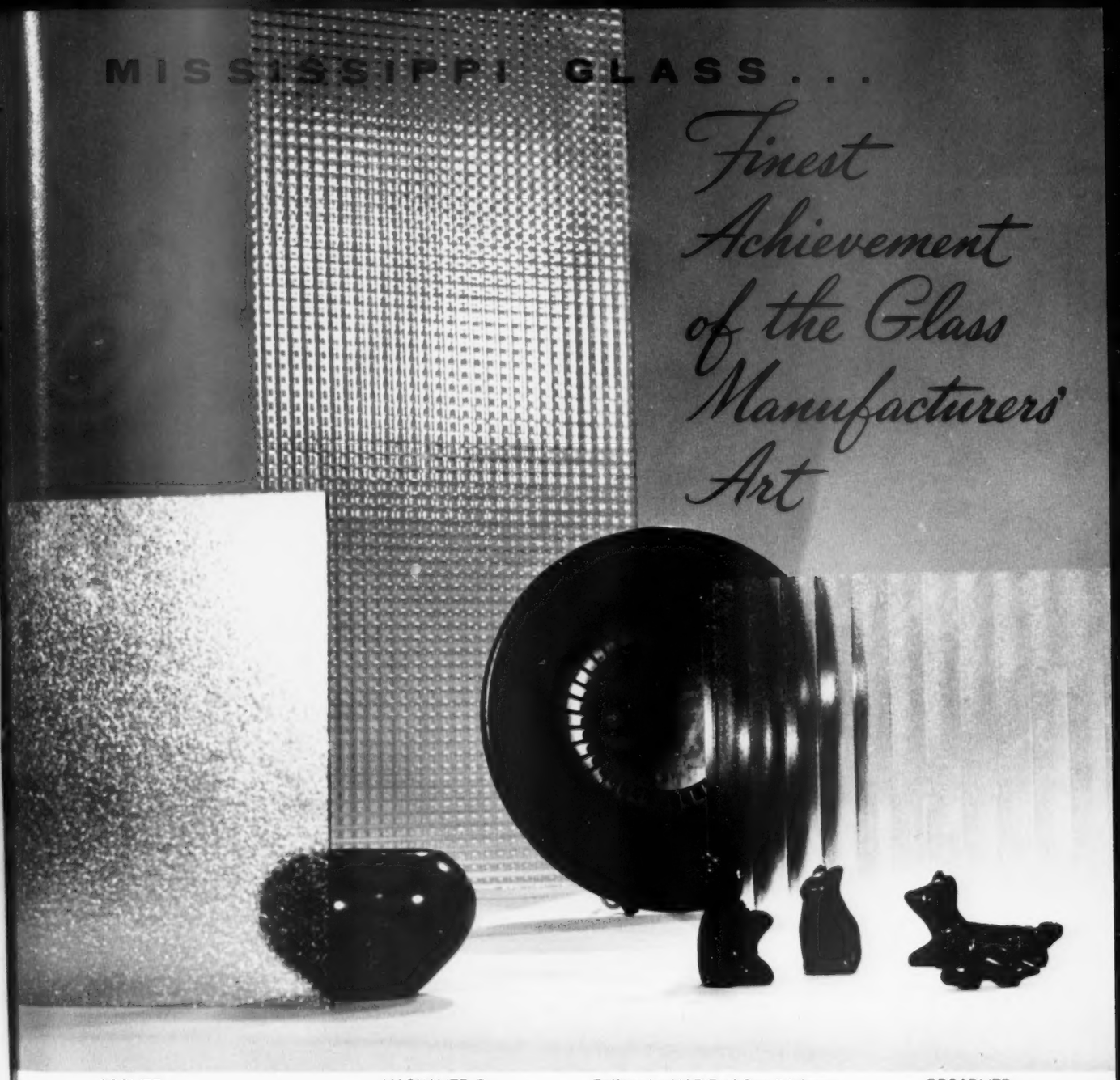
FIGURE 2. Whiskey Creek Bridge. Use of strongest steel in area of highest stress resulted in uniform depth of structure.

TABLE 6

GUIDE FOR SUGGESTED ALLOWABLE UNIT STRESSES. BASED ON MINIMUM YIELD POINT OF MATERIAL. FOR THE YIELD POINT OF DIFFERENT THICKNESSES SEE TABLE 7

YIELD POINT OF STEEL	32-33,000	36,000	42,000	46,000	50,000	100,000
STRESS CONDITION						
(1) Tension	20,000	22,000	25,500	28,000	30,500	60,500
(2) Compression						
Columns, gross Section Axially Loaded Short Columns	$17{,}000 - .485\frac{l^2}{r^2}$	$19{,}000 - 0.625\frac{l^2}{r^2}$	$21{,}000 - 0.768\frac{l^2}{r^2}$	$23{,}000 - 0.942\frac{l^2}{r^2}$	$25{,}000 - 1.114\frac{l^2}{r^2}$	$51{,}000 - 4.454\frac{l^2}{r^2}$
Max. l/r for short column	120.0	120.0	105.2	100.2	95.2	68.1
Axially loaded long columns	$\frac{18{,}000}{1+\frac{l^2}{18{,}000r^2}}$	$\frac{18{,}000}{1+\frac{l^2}{18{,}000r^2}}$	$\frac{143\times10^6}{(l/r)^2}$	$\frac{143\times10^6}{(l/r)^2}$	$\frac{143\times10^6}{(l/r)^2}$	$\frac{143\times10^6}{(l/r)^2}$
Plate girder stiffeners gross section	20,000	22,000	25,500	28,000	30,500	60,500
Web at Toe of Fillet	24,000	26,000	30,500	33,500	36,500	72,500
Butt Welds-Section through throat	20,000	22,000	25,500	28,000	30,500	100,000
(3) Bending						
Tension on extreme fibers of rolled sections, plate girders, and built-up members	20,000	22,000	25,500	28,000	30,500	60,500
Stress on extreme fibers of pins	30,000	33,000	38,000	42,000	45,500	72,500
(4) Shearing						
Webs of beams and plate girders, gross section	13,000	14,300	16,500	18,000	19,500	39,500
Weld metal on section through throat of fillet weld, or on faying surface of plug weld	13,600	13,600	17,000	19,000	20,500	41,000
On section through throat of butt weld	13,000	14,300	16,500	18,000	19,500	39,500
(5) Bearing						
Pins	32,000	35,000	40,500	44,500	48,500	97,000
Contact area-milled stiffeners and other milled areas	30,000	33,000	38,000	42,000	45,500	91,000
Fitted stiffeners	27,000	30,000	34,500	37,500	41,000	82,000
Expansion rollers and rockers (pounds per linear inch) in which d is diameter of roller in inches	600d	660d	870d	990d	1,110d	2,610d

NOTE: Stresses in table for welds apply only when weld metal strength is equivalent or greater than base metal strength.



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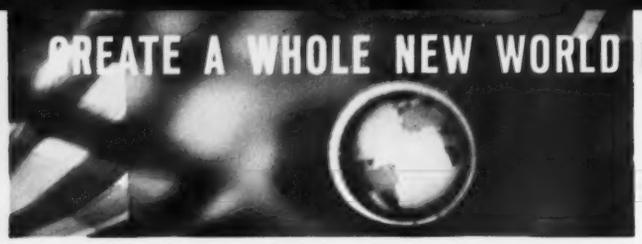

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THE NEW STEELS

(*Continued from page 16*)

Other applications: bridges

In recent years bridge engineers have been quite receptive to the idea of selecting material on the basis of stress in the member. This principle was well demonstrated in the recently completed Carquinez Straits Bridge in California.

Another illustration of the advantages gained by the combination of different steels is the Whiskey Creek Bridge in California (*See Figure 2*). This is a three span continuous girder bridge having 260 foot end spans and a 350 foot center span. Would it not seem quite practical that the portions of the girders subject to the highest bending moments be made of the highest strength constructional alloy steel? That the portions of the girders subject to moderate bending moments be made of high strength low alloy steel, and finally the portions of the girders subject to low bending moments be made of structural carbon steel? This is precisely what was done. Designed in this manner the cross sections of the girders are uniform throughout their length except for a small region in the middle of the center span. The flanges have the same width and thickness, and the web has the same depth and thickness throughout. In addition to the reduction in dead load and consequent cost savings in steel, considerable savings were gained through reduced fabrication costs due to the uniformity of cross section. Other long range benefits will be observed. Maintenance costs will be reduced by eliminating areas that collect dirt. The elimination of stress concentrations caused by changes in cross section is another benefit.

There will be numerous opportunities to utilize the six constructional steels in many structures other than buildings and bridges. For example, consider a large cylindrical storage tank such as those used in the petroleum industry. The stresses in such a tank due to the pressure of the fluid on the walls will vary from zero near the top to a maximum at the bottom. In the past, the wall thickness for this type of structure varied from a minimum near the top to a maximum at the bottom, the only possible approach when only one type of material is available. By utilizing the full range of the constructional family of steels which are available, it is possible to use structural carbon steel plates for the top courses of the vessel where pressure is at a minimum, a high strength low alloy 50,000 psi yield point steel for the plates at the intermediate level and a 100,000 psi yield strength heat treated alloy steel for the plates at the lower level of the vessel where the pressure is at a maximum. In so doing, it is possible to design a vessel having a uniform wall thickness for the full depth of the vessel.

Consider again the advantage in such construction, aside from the reduced thickness of plate required, there would be lower transportation costs, reduced welding costs because all welds would be true butt welds, reduced maintenance costs because the wall of the vessel would be smooth, without ledges on which dirt might otherwise settle, and because of the improved resistance to corrosion of the high strength alloy steels.

Unfortunately, this advanced concept of steel selectivity has not been applied in this country because of code and specification limitations; however, a large storage vessel of this novel design was built in Kuwait on the Arabian Gulf.

Selectivity and the codes

The proper utilization of these materials depends entirely on the imagination and ingenuity of the engineer and architect involved. To insure fully that the most economic solutions to a structure have been determined, engineers and architects must study the economics of utilizing all new materials either alone or in conjunction with those previously used. The designer must consider the possibilities of each of the six constructional structural steels in relation to the structure or portion of the structure being designed. Over the years many designers have been calculating shears and moments without giving sufficient thought to the review and selection of the materials available. Where code and specification restrictions unjustly or arbitrarily restrict the use of these new proven materials, it is up to the engineers and architects, in the interest of their clients, to advocate and press for the necessary changes in existing codes to permit the flexibility of design which is now available through use of the modern steels.

As an aid to the practicing engineer, *Table 6* contains the allowable stresses presently being used by many prominent engineers. *Table 7* gives the yield points of the various steels for different thicknesses.

The formulas and stresses suggested have been determined on the basis of the yield strength of the material and thus have a factor of safety at least as great or greater than that presently offered by the A7 structural steel. The factor of safety for A7 steel based on AISC allowable stresses is 1.65 in relation to its yield point.

Use of the stresses shown in *Table 6* must be based on the judgment of the engineer and the conditions of application of the material and are intended only as a guide until the publication of recommended working stresses by the American Institute of Steel Construction.

Economics

We have not touched on the matter of economics as yet because this is a relative matter. What is looked on as an advantage by one engineer is brushed off by another. Some engineers at the client's request put a great deal more emphasis on first cost than on maintenance, life expectancy or life extension of a structure.

As is to be expected, all the new steels cost more than the generally used A7 structural carbon steel. The economy of the other steels over A7 is in their proper application and use of their improved characteristics.

The Fourth Dimension

It has been said that the engineer of today, in designing a structure, is faced with a *fourth dimension*—the selection of a structural material. Within the family of structural steels he now has seven possibilities. In making a selection these factors among others should be considered: Is the structure to be riveted or welded? Will the conditions for welding be relatively controlled or uncontrolled? Will the steel be exposed? Of what importance is weight reduction? Can the fabrication be simplified? An answer to these questions will determine material selection.

TABLE 7

YIELD POINT OF SHAPES AND PLATES OF VARIOUS THICKNESSES

Grade of Steel	ASTM Designation	Product	Size (Inches)	Minimum Yield (PSI)
CARBON STEEL	A36	Shapes and Plates	ALL	36,000
	A7	Shapes	ALL	33,000
		Plates	To ¾″	33,000
			Over ¾″ to 4″	
	A373	Shapes	ALL	32,000
		Plates	To ½″	
			Over ½″ to ¾″	32,000
			Over ¾″ to 1″	
			Over 1″ to 1½″	
			Over 1½″ to 4″	
HIGH-STRENGTH LOW-ALLOY STEEL	A440	Shapes	To ¾″	50,000
			Over ¾″ to 1½″	46,000
			Over 1½″ to 4″	42,000
		Plates	To ¾″	50,000
			Over ¾″ to 1½″	46,000
			Over 1½″ to 4″	42,000
	A441	Shapes	To ¾″	50,000
			Over ¾″ to 1½″	46,000
			Over 1½″ to 4″	42,000
		Plates	To ¾″	50,000
			Over ¾″ to 1½″	46,000
			Over 1½″ to 4″	42,000
	A242	Shapes	To ½″	50,000
			Over ½″ to 1½″	46,000
			Over 1½″ to 4″	42,000
		Plates	To ½″	50,000
			Over ½″ to ¾″	46,000
			Over ¾″ to 1½″	46,000
			Over 1½″ to 4″	42,000
HEAT-TREATED ALLOY STEEL	—	Plates	To 2½″	100,000
			Over 2½″ to 6″	90,000

NOTE: Quenched and tempered steels do not always show a yield point. Reference here is to the 0.2 per cent offset yield strength.

ALUMINUM

A New Solution to an Old Problem

by Lawrence Michaels*

"The modern processes of casting in metal are modern machines too, approaching perfection, capable of perpetuating the imagery of the most vividly poetic mind without hindrance—putting permanence and grace within reach of every one, heretofore forced to sit supine with the Italians at their Belshazzar-feast of 'Renaissance'." The author of this observation is the late Frank Lloyd Wright, and his sentiments have important implications for a growing number of contemporary designers.

Until recently, most architects were still concerned mainly with exploring the new freedom in design and construction that modern products and methods made possible. Now that these have been widely accepted, many architects are becoming increasingly aware of certain drawbacks, such as some deficiencies in texture, depth, solidity, richness of surface and ornamentation. They are seeking something richer and mellower.

At the same time, these designers have no desire to throw out the baby with the bath water. Their reaction against modern materials and methods is in no sense a rejection of these or a reversion to traditional styles. They are, however, trying to reintroduce into contemporary architecture what they consider certain necessary missing qualities.

All this is implied in Frank Lloyd Wright's evaluation of cast metals.

Cast aluminum

Of these, cast aluminum is playing an increasingly large role in architectural design. What can cast aluminum do for the modern designer, and how can he use it best?

Casting is not a new process, of course, nor are its applications in architecture new, including as they do, masterpieces such as Lorenzo Ghiberti's bronze doors for the Baptistery of the Cathedral of Florence. Casting in *aluminum* is of more recent origin because the metal itself is comparatively "new", but the principles of the process have been well known for centuries.

Castings have texture, depth and richness. They do, however, with the exception of aluminum, have the disadvantage of weight. At present, aluminum castings alone are lightweight enough to be practical in modern high-rise curtain wall construction.

Three applications

There are three principal architectural applications for cast aluminum today: spandrel panels, fascias, and continuous panel walls and roofs, all of which will be described in greater detail later. Apart from profiting by the inherent qualities of these castings, the architect can either create his own decorative design or choose a distinctive stock design which appeals to him.

But why *castings*, some will ask, when we can get pattern and dimension by *stamping* designs in aluminum sheet? And isn't this the more common practice by far today? The answer to the second question is yes. The answer to the first requires a consideration of three factors—appearance, design flexibility, and economy. Cast panels have a feeling of solidity and over-all textural effect not generally found in stamped panels. The design possibilities of stamped panels, especially when the pattern is designed to increase the rigidity of the aluminum sheet tends to be limited to big, simple, linear geometrical patterns. (Curvilinear, multi-planed, asymmetrical, or finely detailed patterns are more difficult to achieve.) Finally, and especially in smaller buildings where the cost of expensive stamping dies cannot be amortized over long production runs, there is the economy factor. While cast panels are generally somewhat thicker than stamped panels, the cost of producting a casting *pattern* is from $200 to $300, compared with the lowest-cost soft dies for stamping, suitable only for short runs, which cost from $750 to $900. And the cost for hard dies necessary for the number of panels required in large structures runs upwards from $8,000. The cost of aluminum alloys used in sheet is higher than the cost of the alloys employed for casting.

The casting process offers an extremely fine potential for a creative approach to design, and may even prove to be the means by which the sculptor resumes a more active role in the enrichment of architecture.

Curtain wall applications

Cast aluminum also has important applications in structural design. In curtain wall construction, for example, a new framing system has been developed using cast aluminum spandrels which act somewhat as structural diaphragms *(Figures 1 and 2)*. Bolted through the vertical mullions, the cast panels impart additional rigidity to the frame itself, thus assisting the vertical supporting member to a degree in resisting external loading. In addition, the provision of an integrally-cast sill affords a further advantage by eliminating the need for horizontal mullions. It thus minimizes the horizontal sight line, emphasizing, if this is desirable, the wall's vertical accents. If, however, the architect prefers to accent the entire grid pattern of the frame, an alternate panel may be used in conjunction with horizontal mullions whose profile is identical to that of the vertical members.

A second development is a cast fascia assembly for decorative friezes around roof enclosures of low-rise buildings *(Figures 3 and 4)*. In this system the fascia panel is bolted to a spandrel beam, then lapped and sealed on each side so that it can move horizontally, independent of the beam. An integral gravel stop is provided by a continuous extruded member which overlaps the casting at the roof line. Among the important advantages of this assembly are its simplicity and its ready adaptability to individual ornamental design treatments. A standardized system of components is being developed, but architects may always, of course, design their own custom systems.

Continuous surfaces

Third among the new developments in cast panels is a system for fabricating panel units into a continuous wall or roof surface, without projecting mullions *(Figure 5)*. Panels are overlapped to form a continuous surface, patterned and textured as the designer specifies. A concealed frame embraces exterior panel, insulation and interior wall surfacing into one complete panel unit, really an assembled "sandwich" unit. Provision could be made for insertion, at intervals, of translucent panels of another material. Varieties of materials, including ordinary glazing, could also be incorporated into a continuous cast aluminum surface. Repetitive panel patterns provide a rich textural effect, and since panels can be joined together almost invisibly if desired, custom casting of large-scale designs is practical, too.

The creation of large-scale designs from separate small panels, rather than in a single, huge one-piece casting, has definite advantages: the problems of casting are simplified; the metal itself can be cast thinner; and transportation, fabrication and erection are made simpler and less costly.

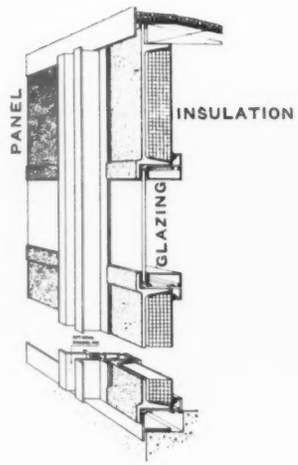
Finishing processes

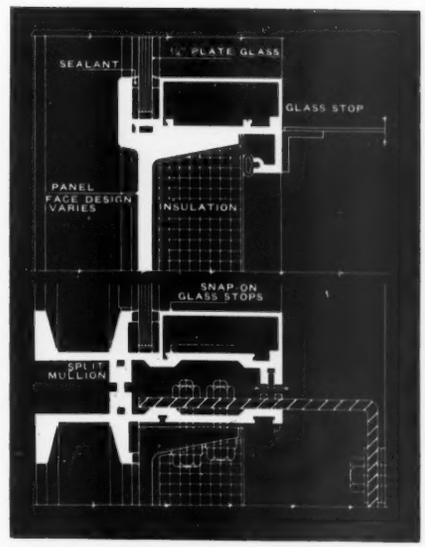
Another aspect of aluminum castings is the development of new finishing processes. Unlike anodizing, these are chemical rather than electrolytic. They react with the metal itself to form permanent, inert, amorphous phosphate-chromate coatings which cut glare, prevent corrosion and minimize maintenance. Their cost is approximately half that of anodizing. They produce a soft, matte, "velvety" surface finish in varying shades of gray-green.

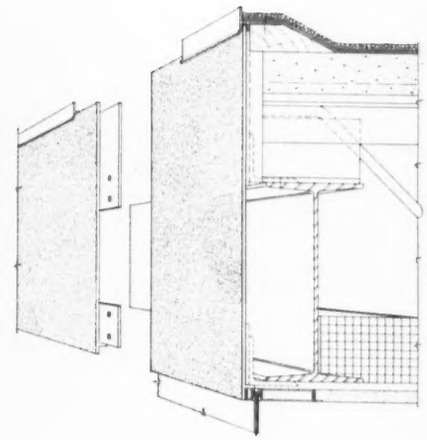
As is often the case, it is difficult to convey the characteristics of aluminum castings from photographs. These castings indeed have much to offer the architectural designer not only in terms of richness of surface but also in terms of structural significance. Aluminum castings are not, of course, a cure-all for all our contemporary design problems. But they do add to the designer's store an important and versatile element.

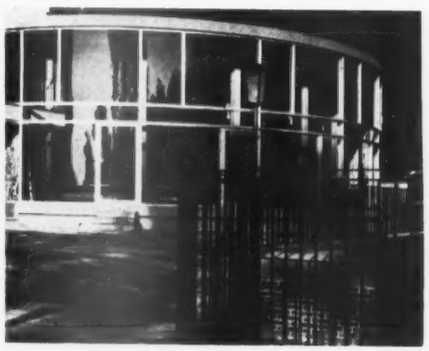
** Mr. Michaels is president of the Michaels Art Bronze Company, Covington, Kentucky.*

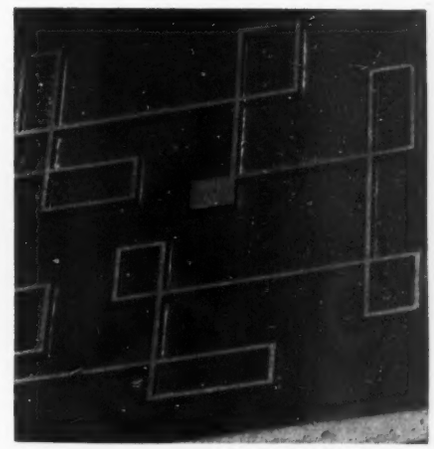
CASTINGS











1 | 2 | 3
4 | 5 | 6

1. Isometric shows diaphragm action of cast aluminum spandrel panels. Panels are bolted through vertical mullions. 2. Details showing vertical section (above) and horizontal section (below). 3. Isometric of fascia panel showing attachment to spandrel beam. 4. Photograph shows wing of new Chancery of British Embassy in Washington. Note cast aluminum frieze (photo: Harry Orton Jones). 5. Drawing shows exterior facing consisting of cast aluminum panels. These are combined with insulation and interior finish into one "sandwich." 6. Fascia detail showing textural effect attainable by the cast process.

CONCRETE DELIVERIES: PRE-ASSEMBLY AND POST-MIXING

Concrete, one of the most hard to manage of all building materials, can now be delivered and dumped at the job site for use at the convenience of the contractor. Development of a sectional rubber batch bag for delivery of concrete makes this possible.

The bag represents a solution to the delivery and scheduling problems of transit mix trucks. Concrete, as stored in the batch bag can be kept in that state for weeks. Rodeffer Industries, Inc., of Pasadena, California, developed the bag, with production being handled by General Tire & Rubber Company.

The bag looks like a huge sausage. When filled, the six-foot long pod holds 1½ cubic yards of concrete. Cement is stored in a rubber core, completely sealed off from moisture, and the aggregate and water are stored in surrounding outer compartments *(Figure 1)*. The bag is designed to be used one thousand times before replacement.

Bags which weigh over three tons when filled are lifted by a ring on the base, filling end down, over the mixing hopper *(Figure 2)*. The bag empties itself when a closing device is released, and the bags can be raised by a number of standard lifting devices or an hydraulic lifting hoist on the transit mix truck.

For quality control of the concrete, bag will enable producers to combine materials with precision. Moisture of the sand and aggregate can be continuously measured. Exact amounts of water required for the desired strength of the finished concrete can be added with accuracy.

FIGURE 1. Neck of bag with filling sleeve in place. Center neck leads to inner bag for cement; outer neck leads to compartment for rock, sand and water. Filling sleeve is removed after filling; necks are then folded over for a watertight seal.

FIGURE 2. With pins released by driver, bag necks are starting to unroll into the discharge hopper. Bag is suspended by hook inserted into a lifting ring at bottom of bag. Conventional ready-mix trucks are equipped with A-frame hoist for lifting bags.

PRODUCTS, EQUIPMENT, MATERIALS

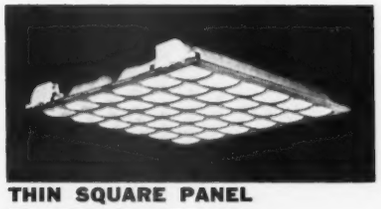
Report of recent developments by industry, based on data furnished by manufacturers. Inquiry cards for further information face pages 1 and 74.

ALUMINUM VENTILATOR OPERATES AUTOMATICALLY

MFR'S DESCRIPTION: ventilator which operates automatically upon variations in temperature.
USES: residential, commercial and industrial.
SPECS/FEATURES: equipped with movable louvers, ventilator opens and closes automatically, controlled by variations in temperatures and directed by a factory-set thermostat. Louvers shut when the temperature drops to 50° F. They move gradually to a fully-open position when the temperature rises to 70°. Seven available models range from foundation type to gable, soffit, and roof louver designs. Ventilator requires no electrical connections, and is produced in standard ventilator opening sizes. Most models are available with mesh insect screen, and with a fusible link which melts in case of fire, automatically closing louvers.
AIA FILE NO. 14-B-4
MFR: THERMVENT CORP.
Circle 200 for further information

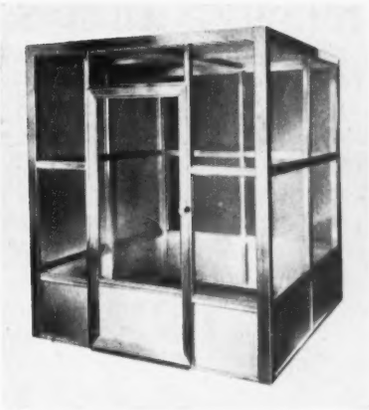
STRESSED-SKIN EFFECT STRENGTHENS WALL UNITS

MFR'S DESCRIPTION: strength and resistance to deflection in manufacturer's wall units achieved through the stressed-skin effect utilized in design of aircraft wings.
USES: residential and commercial.
SPECS/FEATURES: system consists of load-bearing exterior insulated wall panels, with associated door and window headers and corner posts, and load and non-load bearing interior wall panels with door headers and associated appurtenances. Use of the system enables building in one step an entire pre-insulated wall, including interior and exterior surfaces. Exterior walls may be finished in board and batten style or covered with shingles or masonry. Interior walls after the joints have been treated as recommended are ready to receive paint or wall paper. System is designed to accommodate standard millwork. Panels are supplied from stock in standard widths 8′ high, but can be cut and fit to accommodate specific requirements.
AIA FILE NO. 19-E-6
MFR: JOHNS-MANVILLE CORP.
Circle 201 for further information



THIN SQUARE PANEL FLUORESCENT LAMP

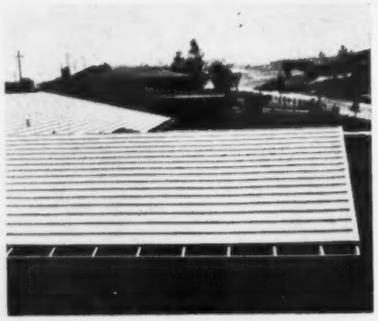
MFR'S DESCRIPTION: new fluorescent lamp shaped as a thin, square panel.
USES: residential and commercial.
SPECS/FEATURES: new fluorescent lamp adds a square form to existing point, linear and circular light sources. Designed to fit a 12" module, it offers, according to manufacturer, a better way of getting more light into a small place. Lamp can be used singly or in groups, and lends itself to built-in, surface-mounted, suspended and free-standing applications. Face plate features a waffle-pattern configuration with 1¾" squares. Face plate diffuses light, concealing path of arc. Lamp produces 4800 lumens at 80 watts, and is designed to operate at either 50 or 80 watts. Rated life is 7500 hours at both wattages. Manufacture involves molding two individual squares of glass, one serving as a configurated face plate and the other with an open trough which loops six times across lamp. Both plates are sealed, compressing a five-foot-long arc path with a 1-foot square area.
AIA FILE NO. 31-F-21
MFR: GENERAL ELECTRIC CO.
Circle 202 for further information



MODULAR-CONSTRUCTED ALUMINUM ENCLOSURE

MFR'S DESCRIPTION: a modular-constructed aluminum enclosure featuring standard-size, interchangeable screens and glass or aluminum panels.
USES: residential.
SPECS/FEATURES: designed for use as solariums; swimming pool enclosures, carports; porch enclosures; screened-in patios; storm vestibules; mobile home additions; greenhouses; boat storage; and ice fishing huts. Design of the product combines modular construction with a variety of standard panels of glass, screen or aluminum. Item can be constructed as a free-standing unit with its own load-supporting posts, or on headers and sills in connection with an existing wood, brick or stone structure.
AIA FILE NO. 35-H-6
MFR: KELCO DIV., WELLS ALUMINUM CORP.
Circle 203 for further information

PRODUCTS, EQUIPMENT, MATERIALS

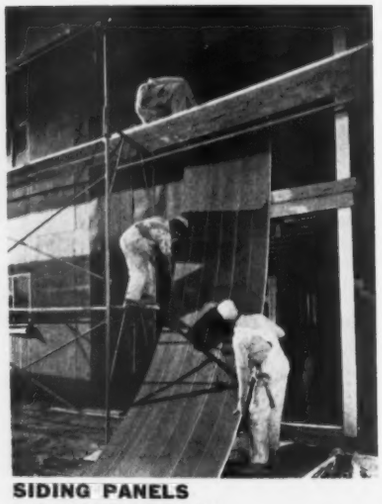


RESIDENTIAL ALUMINUM ROOFING SHINGLES

MFR'S DESCRIPTION: residential roofing shingles 10' long and 12" wide with a line of aluminum roofing accessories.
USES: residential roofing.
SPECS/FEATURES: contour design of aluminum shingles allows body of each shingle to rest against roof sheathing, giving added support, manufacturer says. Shingles are available in six baked enamel colors. Shades are white, gray, beige, redwood, green and blue. Shingles are treated before painting to help prevent fading. Surfaces are of wood grain striated design giving a wood shingle roof appearance. Design of shingle make it strong enough to support the weight of a man without damaging the shingle.
AIA FILE NO. 12-C-1
MFR: CONSOLIDATED GENERAL PRODUCTS, INC.
Circle 204 for further information

HEAVY DUTY SWING CLEAR HINGE

MFR'S DESCRIPTION: heavy duty wide throw or swing clear hinge requiring no special jamb preparation.
USES: industrial and commercial.
SPECS/FEATURES: hinge designed for use on a 1¾" thick door with a 1 15/16" rabbet on the frame. Differs from standard hinge of this type in that the jamb leaves are mortised into a standard 5" frame cut out instead of being surface applied. Knuckles of hinge have been drawn in so when hinge is applied to a steel jamb with a 2" return, there is no interference with wall tile or other wall conditions. Available in extra heavy steel, highly polished and plated, or bonderized and primed for paint. Hinges are supplied in a choice of Oilite or ball bearing.
AIA FILE NO. 27-B
MFR: MCKINNEY MANUFACTURING CO.
Circle 205 for further information



SIDING PANELS OF GIANT LENGTH

MFR'S DESCRIPTION: giant size 16' hardboard siding panel.
USES: light commercial construction.
SPECS/FEATURES: a sixteen foot panel that does the work of several 4'x8' panels. Long panels designed to speed application, eliminate many joints and cut down handling and fitting time. Item is available with smooth or striated surfaces. Panels can be obtained in "U" grooved surface treatments with 4", 8", or random spacing. Item also available primecoated with a light gray, factory applied, resin base surface primer. "U" grooved hardboard panels have a modified shiplap edge that conceals panel joints and maintains a continuous groove pattern. Edge is stairstepped to provide a built-in guidestop in butting panels together.
AIA FILE NO. 19-E-6
MFR: SILVATEK DIV., WEYERHAEUSER CO.
Circle 206 for further information

LIGHTING

ULTRA-VIOLET LIGHT INSECT ERADICATOR

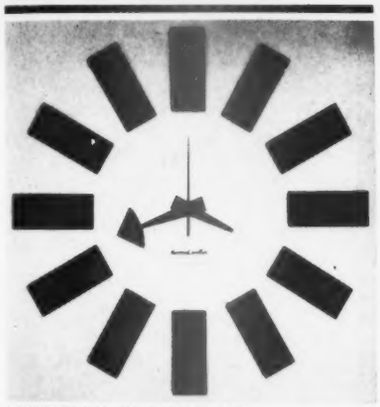
MFR'S DESCRIPTION: insect eradicator utilizes ultra-violet light to attract insects; when close to light, a high-suction fan pulls insects into a disposable bag.
USES: residential and commercial.
SPECS/FEATURES: electronic unit provides control of night-flying insects without recourse to chemical sprays. Item is reported ideal for use in protecting outdoor areas such as patios, swimming pools, food serving areas, or parking spaces from annoying insects. Item operates on regular 110 volt AC. Complete unit retails for $59.95 at the factory.
AIA FILE NO. 35-P-11
MFR: UNIVERSITY DISTRIBUTING, INC.
Circle 207 for further information

PLASTIC-ENCLOSED SINGLE-LAMP CORRIDOR FIXTURE

MFR'S DESCRIPTION: a single-lamp plastic-enclosed fixture designed for areas where a high level of light is not required.
USES: institutional and commercial.
SPECS/FEATURES: item, designated *Cor-vaire*, designed for mounting in tandem as a single row down the center of a narrow corridor or stairway; or in multiple rows in wider passageways. End plates are supplied with each unit so it is possible to mount them individually. Items can be installed directly on ceiling or suspension mounted with stem or rod hanger. Available in 4' and 8' lengths. Unit uses 40-watt rapid-start lamps.
AIA FILE NO. 31-F-21
MFR: WESTINGHOUSE ELECTRIC CORP.
Circle 208 for further information

LIGHTING LUMINAIRE FOR EXTRA-WIDE ROADS

MFR'S DESCRIPTION: new roadway lighting luminaire for 700 and 1000 watt clear- and color-corrected mercury lamps.
USES: exterior, roadway lighting.
SPECS/FEATURES: new unit designed for illuminating extra-wide roadways which have heavy traffic density. Also has wide application in parking lots and shopping plazas. Item has an optical system that directs light to a large area on the roadway for uniform lighting. Specially-designed latch allow easy access to lamp and provides tight seal to keep out bugs, dirt, and moisture. Fixture's textured aluminum finish resists heat, abrasion and corrosion. Designed with built-in regulated output ballast or for remote ballast operation. Provisions have been made in the design so that each lamp can be controlled by a photo cell.
AIA FILE NO. 31-F-26
MFR: WESTINGHOUSE ELECTRIC CORP.
Circle 209 for further information



BUILT-IN CLOCKS TO ESTABLISH CHARACTER

MFR'S DESCRIPTION: line of built-in clocks aimed at accenting architectural detail.

USES: commercial and residential.

SPECS/FEATURES: line of clocks emphasizing form and texture as well as function. Manufacturer says this line of clocks was brought out with the theory that a suitable clock can be the final element that completes a design. George Nelson was the designer.

AIA FILE NO. 35-N-4

MFR: HOWARD MILLER CLOCK CO.

Circle 210 for further information

IMPROVEMENTS IN MAILBOX AND CHUTE

MFR'S DESCRIPTION: mailbox and chute with new design and function improvements.

USES: commercial.

SPECS/FEATURES: new chute contains a combination letter drop, lockstrap and cigarette ejector and eliminates need for separate lockstrap. Chute can be surface mounted, semi-recessed or fully recessed. Receiving boxes are available separately in various sizes and designs, type and arrangement of lettering, with a choice of finishes. Chute has steel lining formed into a continuous section per floor, continuous extruded aluminum side rails, removable glass panels, ceiling fascia and floor base made of heavy gauge aluminum plate and penalty card holder.

AIA FILE NO. 35-H-1

MFR: PIONEER MAIL CHUTE CORP., DIV. OF PIONEER FIREPROOF DOOR CORP.

Circle 211 for further information

STAINLESS STEEL SAND URN

MFR'S DESCRIPTION: stainless steel sand urn.

USES: commercial.

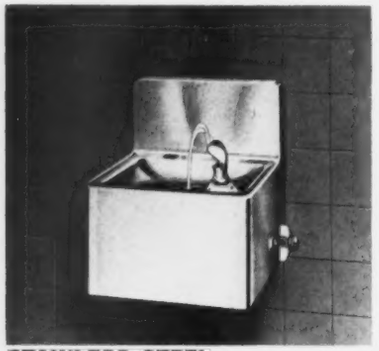
SPECS/FEATURES: stainless steel lipped sand urn. Manufacturer states

"spinning" finish matches the stainless steel finish found in many modern buildings. Item is 19" high and weighs about 7 lbs empty. Designed for use in corridors and other public locations.

AIA FILE NO. 35-J-43

MFR: LAWRENCE METAL PRODUCTS, INC.

Circle 212 for further information



STAINLESS STEEL WATER FOUNTAIN

MFR'S DESCRIPTION: line of stainless steel drinking-water equipment.

USES: institutional and commercial.

SPECS/FEATURES: stainless steel drinking-water equipment includes newly designed face-mounted wall-types as well as counter-type classroom fixtures and other coolers. Finish used on equipment matches much of the interior and trim found in modern institutions, office buildings and stores, manufacturer says.

AIA FILE NO. 29-H-1

MFR: HALSEY W. TAYLOR CO.

Circle 213 for further information

STAINLESS STEEL MOBILE COFFEE UNIT

MFR'S DESCRIPTION: 20 gallon mobile coffee dispenser unit made exclusively of stainless steel.

USES: institutional and commercial.

SPECS/FEATURES: table top mobile coffee dispenser with coffee storage compartment under serving faucet—the faucet is the only protrusion above working height, leaving the table top surface for cream dispenser and cups. Coffee dispenser is made of all-stainless steel. Two control panels are recessed on the working side: one gauge showing the amount of coffee in dispenser, the other an indicating control switch. Casters have foot pressure locking devices that brake the swivel as well as movement of wheel.

AIA FILE NO. 35-C-4

MFR: S. BLICKMAN, INC.

Circle 214 for further information

PLUMBING

GOLD-PLATED BATH FIXTURES

MFR'S DESCRIPTION: line of decorative plumbing fixtures and bathroom accessories.

USES: residential.

SPECS/FEATURES: made to fit all standard basins, line of lavatory ensembles includes a range of designs in solid brass, with emphasis on gold-plated and silver-plated finishes. All are complete with basic plumbing parts.

AIA FILE NO. 29-J

MFR: PHYLRICH SALES CO.

Circle 215 for further information

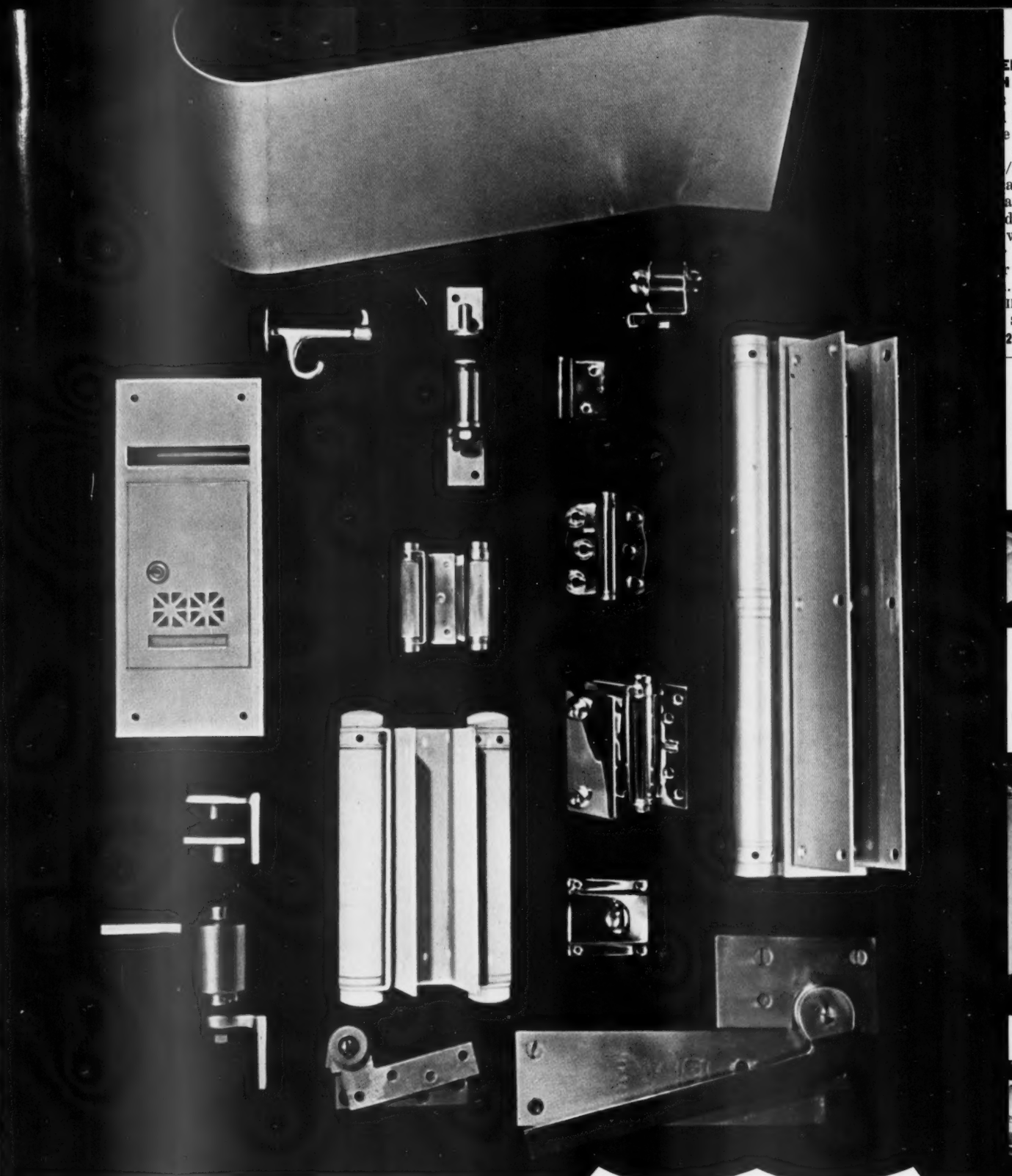
CONTROL AND SHUTOFF BUTTERFLY VALVES

MFR'S DESCRIPTION: line of control and shut-off butterfly valves for rectangular and flat oval ducts.

USES: industrial.

SPECS/FEATURES: valve has one piece aluminum alloy body of small face-to-face dimension. Body has a replaceable rubber or synthetic resilient elastomer liner, against which the oval aluminum disc seats for tight closure. Because of the valve's design, there is a minimum pressure drop in full open position of the disc. Throttling and shutoff can be controlled by a lever, hand wheel or automatically by a pneumatic cylinder, diaphragm operator or electric mo-

Circle 116 for further information about BOMMER →



FITNESS and FINISH

The accepted standard of excellence by builders throughout the world.

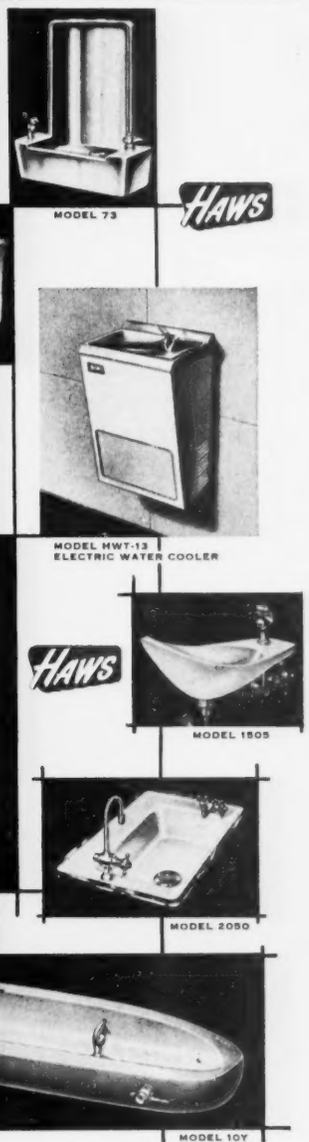
BOMMER
SPRING HINGE CO. INC.
PIONEERS OF THE SPRING HINGE INDUSTRY
EXECUTIVE OFFICE AND PLANT: LANDRUM, S. C.

Sales offices and warehouses: 262 Classon Ave., Brooklyn, N. Y., 180 N. Wacker Drive, Chicago, Ill.

EBOARD HEATERS
H SAFETY FEATURE

DESCRIPTION: electric base- heaters equipped with a safety e to prevent overheating. residential and commercial.
/FEATURES: safety device auto- ally shuts off electric current. ase in temperature is trans- d along a liquid filled capillary which activates safety device. a 50 degree temperature drop r is automatically switched on

ILE NO. 31-K-3
SEABOARD PRODUCTS CORP.
222 for further information



AUCET COMPANY
KELEY 10, CALIFORNIA

Circle 118 for further information

PRODUCTS, EQUIPMENT, MATERIALS

"spinning" finish matches the stainless steel finish found in many modern buildings. Item is 19" high and weighs about 7 lbs empty. Designed for use in corridors and other public locations.

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Circle 116 for further information about BOMMER →

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Sales offices and warehouses: 262 Classon Ave., Brooklyn, N. Y., 180 N. Wacker Drive, Chicago, Ill.

$10,000. in Awards for Hot Dip Galvanizing Ideas

Ten awards offered by American Hot Dip Galvanizers Association in cooperation with American Zinc Institute

Galvanizers International Award

THINK! Think about new uses for Hot Dip Galvanizing! Or, improvements in present uses! Or, new methods of after treatment! If your idea is accepted, you will receive one of ten awards of $1000 in cash, plus a handsome medal, plus an engrossed Certificate of Achievement.

Not a contest but a search for new ideas

This is not a contest—it is a search for new ideas. Your entry will not be judged against others, but solely on its merit and value in developing new applications and markets for Hot Dip Galvanizing. If your idea, in the opinion of the judges, is of practical value to the industry, you will be cited for an award—promptly.

The Hot Dip Galvanizing Industry is anxious to receive ideas of this type; therefore, the judges reserve the right to present *more than 10 awards*, if the entries warrant.

These well-known men will act as judges

Dr. Clarence H. Lorig, Technical Director, Battelle Memorial Institute and Past President American Society for Metals. Mr. John R. Daesen, Technical Director, American Hot Dip Galvanizers Association. Mr. John L. Kimberley, Executive Vice President, American Zinc Institute.

Anyone is eligible to enter

Anyone in the world (except members of the American Hot Dip Galvanizers Association and the American Zinc Institute, and their employees and advertising agencies) may submit one or more entries.

Business firms or corporations may submit entries under their business name, instead of as individuals, if they choose.

Entries will be considered by the judges promptly upon their receipt. No entry received after April 30, 1962 will be considered.

These are the kind of ideas we're looking for:

The Awards will be made for ideas pertaining to: (a) Applications of Hot Dip Galvanizing to a new or unusual field, or; (b) An improvement in application in fields where Hot Dip Galvanizing is now being used, or; (c) New methods of after-treatment of Hot Dip Galvanized products.

Each entry must contain:

(a) Description and documentation of application.

(b) Case history of the application or process accompanied by photo, drawings, formulae, etc.

(c) All technical data needed for the utilization of the idea submitted.

(d) Release of the application or idea for general use without payment or royalty other than the $1000 award.

Other conditions:

The decision of the judges will be final.

Award-winning ideas will be retained by the American Hot Dip Galvanizers Association for dissemination throughout industry. Other entries will be returned.

No formal entry blank is required. The entry should be accompanied by your name, address and business connection.

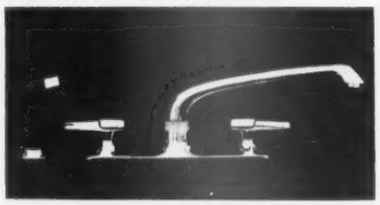
Entries should be sent to:

American Hot Dip Galvanizers Association, Inc.
5225 Manning Place, N. W.,
Washington 16, D. C.

Note: For information on galvanizing, write to the above address for name and location of the American Hot Dip Galvanizers Association member nearest you.

Circle 117 for further information

tor. A dial indicates position of the disc. For automatic control, a valve positioner may be included. Manufacturer states valve has been adopted by the US Navy.
AIA FILE NO. 30-D-4
MFR: W. S ROCKWELL CO.
Circle 216 for further information



RESIDENTIAL FAUCETS IN CRISP NEW DESIGN

MFR'S DESCRIPTION: a completely new line of kitchen and lavatory faucets named the *Princess* has been introduced.
USES: residential kitchens and lavatories.
SPECS/FEATURES: according to manufacturer, new faucet line is the first totally new design in many years. Handles of the units are oriented at 45° to meet the natural angle of the outstretched hand. Each handle has thumb depression and a smoothly contoured finger-grip extension. Included in the line is a single lever kitchen faucet, featuring "set-swing" operation. Also available are two types of 8" concealed designs, an 8" exposed design, a 4" lavatory faucet, plus two- and three-valve tub and shower fittings.
AIA FILE NO. 29-H-5
MFR: MICHIGAN BRASS CO.
Circle 217 for further information

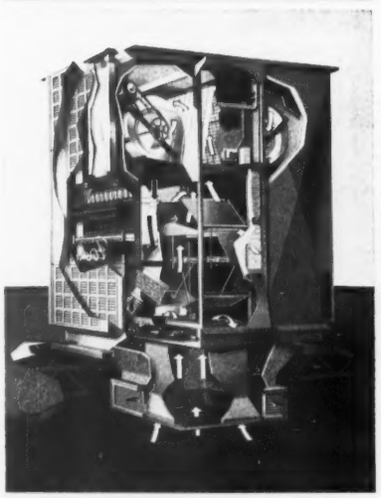
NEW HIGH PRESSURE SHUT-OFF VALVE

MFR'S DESCRIPTION: a new high pressure shut-off valve equipped with a *Teflon* seat which is compressed into a positive sealing O-ring.
USES: industrial.
SPECS/FEATURES: the manufacturer states new seal is impervious to nearly all fluids and is leakproof despite seat erosion or interference by foreign matter. When valve is closed, stem packing can be replaced without removing valve from line. Valve is easily opened and closed under extreme pressure according to manufacturer.
AIA FILE NO. 34-E-1
MFR: CLAYTON MARK & CO.
Circle 218 for further information

EXPLOSION-PROOF ALUMINUM UNIONS

MFR'S DESCRIPTION: line of all-aluminum, explosion-proof electrical unions with small exterior dimensions.
USES: industrial and commercial.
SPECS/FEATURES: two models available—*EUF* series with female ends, and *EUM* series with a male end and a female end. Body and ring of these unions are tapered to provide a positive seal if an interior explosion occurs. Manufacturer states unions designed with the smallest diameter and shortest length possible. Reducing the over-all size helps allow parallel conduit to be placed closer together, as well as more flush with walls. Sizes are provided to handle ½" through 2" conduit.
AIA FILE NO. 31-C-62
MFR: KILLARK ELECTRIC MANUFACTURING CO.
Circle 219 for further information

HVAC



NEW ROOF-MOUNTED UNIT HEATS, COOLS AND VENTILATES

MFR'S DESCRIPTION: a new roof-mounted heating, ventilating and air conditioning unit.
USES: commercial climate control.
SPECS/FEATURES: unit delivers 7½ or 10 tons of cooling combined with heating capacity from 204,000 (in increments of 34,000 BTU/h) up to 340,000 BTU/h. Temperatures controlled by a single heating-cooling thermostat or, at the owner's option, by two thermostats each controlling a separate zone. Conditioned air may be ducted or distributed through a specially designed diffusing head which projects below ceiling surface. Another advantage is feasibility of specifying combinations of compressor-condenser units with one roof-top unit or one compressor-condenser unit serving two roof-top units, for two-stage cooling.
AIA FILE NO. 30-F-2
MFR: LENNOX INDUSTRIES, INC.
Circle 220 for further information

GLASS FIBER INTAKE AND RELIEF VENTILATOR

MFR'S DESCRIPTION: molded fiber glass unit features low profile, weather resistance and flexibility.
USES: commercial and industrial.
SPECS/FEATURES: intake and relief ventilator designed for applications involving climatic heat, cold and salt spray. Throat-opening sizes range from 10" to 60", either square or rectangular, and are currently available in 12 colors. Accessories for unit are available.
AIA FILE NO. 12-K
MFR: WILLIAMS-BERMUDA CORP.
Circle 221 for further information

BASEBOARD HEATERS WITH SAFETY FEATURE

MFR'S DESCRIPTION: electric baseboard heaters equipped with a safety device to prevent overheating.
USES: residential and commercial.
SPECS/FEATURES: safety device automatically shuts off electric current. Increase in temperature is transmitted along a liquid filled capillary tube which activates safety device. After a 50 degree temperature drop power is automatically switched on again.
AIA FILE NO. 31-K-3
MFR: SEABOARD PRODUCTS CORP.
Circle 222 for further information

PRODUCTS, EQUIPMENT, MATERIALS

COOLING AND HEATING IN OUTSIDE UNIT

MFR'S DESCRIPTION: climate control outside unit combining gas heating and electric cooling.

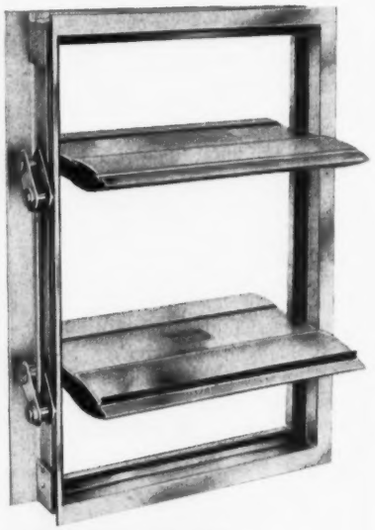
USES: residential and commercial.

SPECS/FEATURES: unit combines a horizontal type forced-air gas-furnace and an air-cooled electric remote air conditioner in one package designed for outdoor use. Unit measures 2'x3'x4'. Package is designed for rooftop installation on flat and other roofs, for two-story construction, platform or dormer recess. Provisions made in design for slab-floor, crawl floor and basement construction. In rooftop applications unit design eliminates weight problem imposing unusual load factors on structure. At present two models are available which produce 2 tons of cooling capacity with 55,000 BTU heating capacity or 3 tons of cooling with 80,000 BTU heating capacity.

AIA FILE NO. 30-F-1

MFR: DAY & NIGHT MANUFACTURING CO.

Circle 223 for further information



ALUMINUM DAMPER WITH DOUBLE BLADE

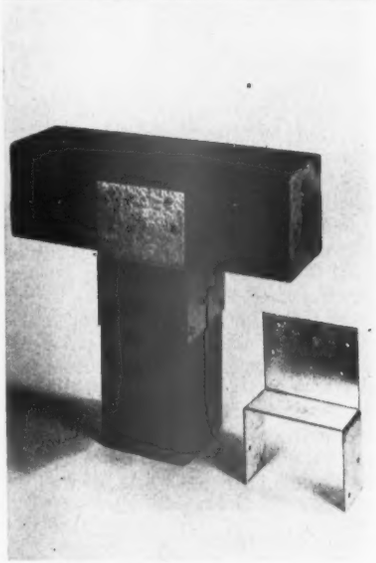
MFR'S DESCRIPTION: improved aluminum damper with airfoil double blade.

USES: industrial and commercial.

SPECS/FEATURES: damper made of aluminum said to require no painting or other maintenance. Major improvements, manufacturer says, are elimination of hardware from the blade, reduced duct size, lessened friction and turbulence, and quieter

operation. When closed, double blades act as an insulator. Blade widths vary from 5" to 9". Any length blade can be provided.
AIA FILE NO. 30-D-4
MFR: ARROW LOUVER & DAMPER CORP.
Circle 224 for further information

HARDWARE



STEEL POST CAPS FOR WOOD FRAME

MFR'S DESCRIPTION: addition of a newly designed post cap for joining 4x4's to manufacturer's line of wood fasteners.
USES: timber framing.
SPECS/FEATURES: post cap manufactured from 16 gauge, zinc coated sheet steel. Item designed to be used either singly or in pairs when tying together post and beam connections. Load requirements or nature of connection itself determine whether one or two caps are used. Rectangular flanges 1 11/16"x2⅝" provide for nailing on each side of the 4'x4' post while a large flange measuring 3⅝"x 2¾" provides for nailing to beam.
AIA FILE NO. 19-B-5
MFR: TIMBER ENGINEERING CO.
Circle 225 for further information

SELF-SEALING CAPTIVE SCREWS ELIMINATE TAPPING OF PANELS

MFR'S DESCRIPTION: new line of captive self-sealing fasteners.
USES: various construction applications.
SPECS/FEATURES: item available in thread sizes from 2-56 up to ¼-20. Only one length is required for each thread size, but each size will accommodate all panels or covers from 1/32" to ¼" thick. No tapping of the panel, or special tools are required for installation, and they can be used in standard clearance holes. Fasteners employ a grip ring on the blind side of panel as a retaining device. Slipped into place, grip ring not only prevents accidental unscrewing, but also eliminates the need for special thread tapping of panels and prevents accidental cross-threading or thread locking. Item will seal internal and external pressures in excess of 500 psi.
AIA FILE NO. 27-A
MFR: A. P. M. CORP.
Circle 226 for further information

DRIVE SCREW DESIGN HELPS IMPROVE NAILING

MFR'S DESCRIPTION: line of screw-type nails designed to improve fastening capacities of nailing.
USES: various construction.
SPECS/FEATURES: the manufacturer claims spiral shank of nail gives item better holding power and screw design keeps nails from working loose. Requires no nail props. Helps eliminate splits and checks in hard wood because spiral edges cut fibers and wedge in place. Applications of drive screws in building include drywall and plasterboard, plywood sheathing, rigid insulation, securing cedar shakes and shingles, and laying subflooring. Fasteners made from stiff steel stock. Available in several finishes and point styles.
AIA FILE NO. 27-A
MFR: HILLWOOD MANUFACTURING CO.
Circle 227 for further information

ALUMINUM SHIELDING FOR CHIMNEY TOPS

MFR'S DESCRIPTION: chimney shield designed to prevent entry of small animals and escape of sparks.
USES: residential.
SPECS/FEATURES: product is a one-piece aluminum casting, non-rusting, non-corroding product designed to halt the entry of small animals through the chimney and to stop the escape of sparks and embers. Product is laid on the chimney top and clamped in place with screws for total installation. Sizes are 8"x8", 8"x12" and 12"x12".
AIA FILE NO. 14-E
MFR: ST. CLAIR BRONZE AND ALUMINUM CO.
Circle 228 for further information

ALUMINUM TRENCH COVERS FOR INTERIOR OR EXTERIOR

MFR'S DESCRIPTION: new series of aluminum trench covers designed for interiors and exteriors.
USES: residential, commercial and industrial.
SPECS/FEATURES: item adaptable to trenches up to 9" wide. Cover plate fits flush with floor area, and is easily removed for access to trench. Primary uses include telephone and electrical runways, floor and sidewalk drainage systems, and swimming pool outlets. Three types of cover

plates are available. For plant areas or other applications where firm footing is necessary, an abrasive thread plate is offered. For drainage areas or where a constant view is necessary, a perforated cover may be used. A smooth, flat cover is also available.
AIA FILE NO. 14-A-2
MFR: ARCHITECTURAL ART MANUFACTURING, INC.
Circle 229 for further information

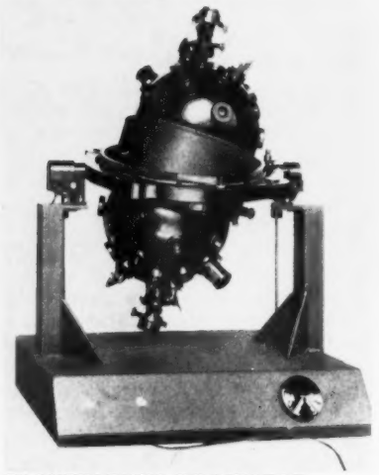
MISCELLANY

ELECTRONIC SCANNER FOR DOLLAR BILLS

MFR'S DESCRIPTION: device for electronically scanning one dollar bills at selected check points.
USES: commercial.
SPECS/FEATURES: dollar bill is inserted into a slot provided for this purpose, is picked up by a belt, which carries it past a photo-electric scaning eye and weight and size gauges. These detect objects other than genuine one dollar bills, after which, in one model, bill is held until either return or vend button is pushed. Genuine bills drop into a space provided inside the machine and an electrical circuit is closed when vend button is pushed. Models without vend and return buttons are available. In these models genuine bills are accepted instantly, non-genuine returned. This closed electrical circuit may be used to energize all types of electrical vending and change-making machines, as well as to release turnstiles, doors, automatic bowling and billiard ball releases or combinations of these. It can be used to activate any sort of electrical device.
AIA FILE NO. 35-N-8
MFR: PLANETRONICS, INC.
Circle 230 for further information

NEW FUNCTION AND STYLE FOR DISTILLATION RACK

MFR'S DESCRIPTION: improvements in style and function of a laboratory's distillation rack.
USES: hospital, research and other laboratories.
SPECS/FEATURES: item now designed to fit into what manufacturer's research found was usually wasted laboratory corners. Rack permits two independent complex setups to be carried on simultaneously without interference of personnel or apparatus. Both horizontal and vertical racks are adjustable, with an infinite number of rod arrangements possible. Mechanical piping is centralized. Fixtures on both control panels are serviced from one set of supply lines. Service is provided for water and drain, gas, air, vacuum, steam and electricity. Various sizes and services are available. Color is two-tone gray or eyerest green with complementing color-tone control panels.
AIA FILE NO. 35-E-2
MFR: METALAB EQUIPMENT CO.
Circle 231 for further information



PLANETARIUM PROJECTOR FOR SCHOOLS AND COLLEGES

MFR'S DESCRIPTION: a new small planetarium projector suitable for high school and junior college.
USES: educational.
SPECS/FEATURES: instrument optically projects the northern and southern skies in their true perspective and can be used with dome screens 16′ to 30′ in diameter. In addition, diurnal motion as well as latitude change and precession can be demonstrated with remotely controlled motor drives on the projector. Price is approximately $4200.
AIA FILE NO. 35-N-8
MFR: ASTRO-DOME, INC.
Circle 232 for further information

CLOSED CIRCUIT TV SYSTEM OPERATES IN DIM LIGHTING

MFR'S DESCRIPTION: relatively low cost, lightweight, portable equipment for private television circuits.

USES: commercial and industrial.

SPECS/FEATURES: complete system consists of camera, camera control and monitoring equipment. Because of good resolution at low light levels, down to .0001 foot candles of tube illumination, system is suited for underwater work, night-time viewing and dark area inspection, inspection of automatic processes, as well as other observation methods covering a broad category of business and industry. Features of this new system as pointed out by manufacturer are the rugged extruded aluminum camera housing, simple operation, completely modular construction for ease of servicing, compact camera, and a newly-designed "zoom" which, by pressing of a button, instantly enlarges the picture on the monitor screen.

AIA FILE NO. 31-i-6

MFR: MARYLAND TELECOMMUNICATIONS, INC.

Circle 233 for further information

RESERVOIR PEN FOR DRAFTING

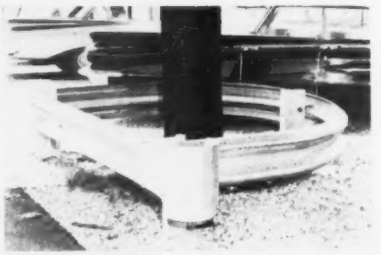
MFR'S DESCRIPTION: reservoir pen with ink supply contained in an air-tight, non-porous translucent cartridge with visible ink supply.

USES: drafting applications.

SPECS/FEATURES: reservoir pen adaptable with manufacturer's line of drafting equipment. Holds enough ink to draw a straight line approximately 1200 feet or about as much ink as contained in an average fountain pen. A built-in weighted needle assures a clean passage of ink from reservoir to the point. Needle also

Circle 122 for further information →

provides efficient cleaning action when washing out the pen. Seven point sizes range from 00 to 5.
AIA FILE NO. 35-H-3
MFR: KEUFFEL & ESSER CO.
Circle 234 for further information



LIGHT-GAUGE GUARDRAIL

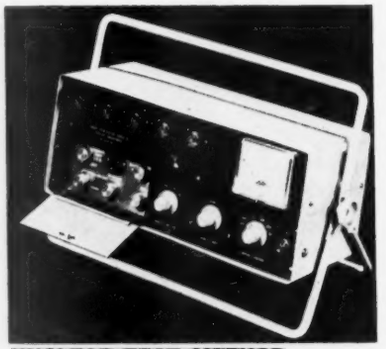
MFR'S DESCRIPTION: light-gauge guard-rail for off-highway applications.
USES: commercial and industrial.
SPECS/FEATURES: deep-beam guard-rail made of 16 gauge steel, compared with 12 gauge beams of standard highway guardrails. Item is galvanized on both sides and does not need painting for weather protection. Supplied in 12'-6" or 25' lengths. A single bolt holds the sections to any timber, concrete or steel post. Item especially designed for use in parking lots, inside-plant protection, drive-in restaurants and similar low-impact applications.
AIA FILE NO. 11-P
MFR: ARMCO DRAINAGE & METAL PRODUCTS, INC.
Circle 235 for further information

EARLY AMERICAN STYLE EMBOSSED COPPER TILE

MFR'S DESCRIPTION: embossed tile in solid copper or copper glaze with Early American design styles.
USES: residential.
SPECS/FEATURES: each tile is embossed with a different memento of Early Americana—teapot, coffee grinder, flat iron, kerosene lamp, pitcher pump, and trivet. Main application calls for incorporating embossed tiles into a border or specific design, when tiling kitchen backsplash areas in solid copper or copper glaze. Tiles may be singly framed, or arranged for group mounting.
AIA FILE NO. 15-B
MFR: VIKON TILE CORP.
Circle 236 for further information

ELEVATORS 30 PER CENT LIGHTER WITH NEW CORE

MFR'S DESCRIPTION: lightweight elevator cabs designed around a honeycomb core.
USES: commercial and industrial.
SPECS/FEATURES: weight reduction of about 300 pounds from standard elevator cabs possible because walls, doors and roofs of new cabs are constructed around a honeycomb core. Because of its high strength-to-weight ratio, the honeycomb sandwich core provides good tensile strength and can withstand rough wear and abuse, manufacturer says. An exterior skin of 27-gauge aluminum is bonded to the basic panel and interior finish is applied as specified.
AIA FILE NO. 33-A
MFR: TRIUMPH METAL PRODUCTS. INC.
Circle 237 for further information



NUCLEAR TEST METHOD FOR SOIL IMPROVED

MFR'S DESCRIPTION: improved system for determining per cent moisture and density by nuclear methods.
USES: construction site soil tests.
SPECS/FEATURES: equipment, while adaptable to a wide range of uses finds its largest present demand in compaction control and study of soil moisture and density in conditions prior to highway and dam construction. It also finds wide usage in moisture studies relative to water conservation, agricultural and irrigation control projects. Complete system consists of counting unit (sealer) and a moisture or a density probe or both, containing a radioactive material and a detector system. Manufacturer states new equipment is about 40 per cent lighter than other nuclear equipment.
AIA FILE NO. 1-D
MFR: TESTLAB CORP.
Circle 238 for further information

SILICONE RUBBER SEALANT REQUIRES NO PREPARATION

MFR'S DESCRIPTION: one-part building sealant ready for application without heating or refrigeration.
USES: construction sealing.
SPECS/FEATURES: item requires no catalyst or pre-mixing and cures to a dry, tack-free surface less than one hour after exposure. Sealant is non-staining and may be applied to light

colored masonry and other porous materials. Supplied in polyethylene cartridges ready for use in standard air or hand operated guns. Unopened cartridges may be stored for at least three months without affecting sealing properties or performance. Standard colors are white, black, gray with other colors that match or complement available or on request. Sealant develops a "skin" in as little as 15 minutes and cures to a depth of ⅛" in one day.

AIA FILE NO. 17-J

MFR: DOW CORNING CORP.

Circle 239 for further information

ELECTRICAL OUTLET COVERS WITH NATURAL WOOD VENEERS

MFR'S DESCRIPTION: hardwood veneers in a wide range of natural color tones bonded to aluminum electrical outlet covers.

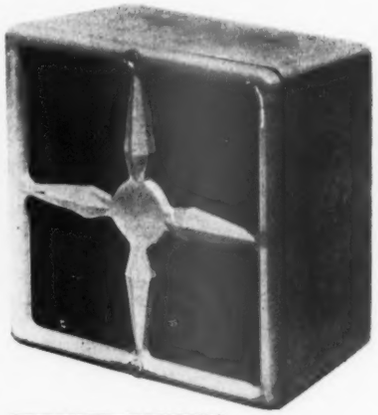
USES: residential and commercial.

SPECS/FEATURES: product is of contemporary design without ornamentation. Face is genuine wood veneer permanently bonded to sheet aluminum. Smooth-sanded and ready for finishing to match the finish of the wood paneling. Edges are smooth and slightly rounded. Wood veneers of popular species are used for plate face. Current production includes single, double, triple and quadruple toggle plates, duplex, combination duplex and single toggle plates, telephone outlet plates and blank single plates that can be adapted to any standard size box.

AIA FILE NO. 31-C-71

MFR: ELLIOTT BAY LUMBER CO.

Circle 240 for further information



SPEAKER HOUSING FOR INTERCOM STATIONS

MFR'S DESCRIPTION: compact aluminum speaker housing for intercom stations.

USES: commercial.

SPECS/FEATURES: model *KC-5* accommodates any standard 5" speaker. Speaker screen is .040 electrolytic tin-plated steel. Measures 6"x6"x3", and may be mounted on walls, elec-

PRODUCTS, EQUIPMENT, MATERIALS

trical outlet boxes or standard microphone stands. Unit is heavy cast aluminum with rounded corners and available in tan and dark brown but may be painted any color. Front section of unit, or grille, can be removed for access to speaker by unfastening two screws.

AIA FILE NO. 31-i-7

MFR: LOWELL MANUFACTFURING CO.

Circle 241 for further information

PRE-CUT FLASHING FOR VENT STACKS

MFR'S DESCRIPTION: pre-cut flashing for vent stacks in four pipe sizes.

USES: construction applications.

SPECS/FEATURES: pre-cut sheets of manufacturer's flexible flashing in an 18"x18" sheet with openings for 2½" and 3" pipes, and a 20"x20" sheet with openings for 3½" and 4" pipe. Specially-developed shipping boxes are color coded for quick identification. Application instructions are shown on the outside of each box of 12 pieces and are also packed inside the box. Product carries FHA release number 291.

AIA FILE NO. 12-H

MFR: DOW CHEMICAL CO.

Circle 242 for further information

POLYURETHANE FOAM FOR THERMAL INSULATION

MFR'S DESCRIPTION: polyurethane foam developed for use independently or with polystyrene foam.

USES: numerous insulating applications.

SPECS/FEATURES: polyurethane foam has approximately the same density as polystyrene foam but about twice the insulating efficiency. Plastering can be done directly over the new foam. New foam resists solvents and has good acid resistance, resists gasoline and petro-chemicals, will not rot, is vermin-proof, odor-free and nontoxic, according to manufacturer. Adhesives recommended include hot asphalt, petroleum base mastics, asphalt emulsions, or a mixture of asphalt and petroleum solvents.

AIA FILE NO. 37-D-1

MFR: PITTSBURGH CORNING CORP.

Circle 243 for further information

IMPROVED TURBINE DESIGN ON PACKED PUMPS

MFR'S DESCRIPTION: improved general design pump for boiler feed, condensate return, transfer, and circulation applications in plants scheduling weekly maintenance of packing.

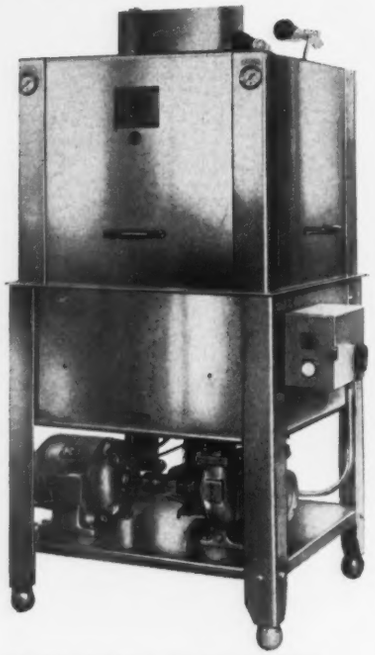
USES: industrial.

SPECS/FEATURES: general design limits on pump are as follows: discharge 150 *PSIG*, suction 30 *PSIG*, stuffing box 75 *PSIG*, and temperature 210° F. Advancements in this pump's design include renewable liners for easy field repair, a stainless steel shaft, and a drip-proof bearing housing which insures against failure.

AIA FILE NO. 34-B

MFR: ROY E. ROTH CO.

Circle 244 for further information



COMMERCIAL DISHWASHER IN NEW MODEL LINE

MFR'S DESCRIPTION: newly designed automatic, single tank, door-type dishwasher.

USES: commercial.

SPECS/FEATURES: new model of commercial dishwashing machine features all-welded cove and radius hood construction and deep drawn, coved cornered, seamless, one-piece tank that is self-draining. New door suspension simplifies raising and lowering the die-formed doors. Item will service up to 250 diners per meal and has internal castings made of a new non-ferrous nickel alloy that resists corrosion.

AIA FILE NO. 29-H-7

MFR: INSINGER MACHINE CO.

Circle 245 for further information

DOORS/WINDOWS

SAFETY GLASS FOR SLIDING DOORS

MFR'S DESCRIPTION: line of all-glass sliding doors, completely frameless and made entirely of safety glass.

USES: residential, commercial and institutional.

SPECS/FEATURES: item is fully heat-tempered, polished plate glass with five times the mechanical strength, and many times the impact resistance of ordinary glass, manufacturer states. Under extreme localized impact safety glass crumbles into small, relatively harmless particles, instead of jagged pieces. Glass is distortion-free. Engineered for easy installation, high weather protection, and low heat losses, the sliding all-glass door is fabricated in ⅜" thickness. Available in all standard opening sizes of fixed and sliding panels, as well as custom panels up to 78"x 93⅝". Door opens and closes on sealed, pre-greased ball bearing rollers. Wheels and jambs are both adjustable. Cylinder locks can be specified on the outside of any panel and screen tracks are provided with the sub-sill for exterior installations.

AIA FILE NO. 16-N

MFR: VIRGINIA GLASS PRODUCTS CORP.

Circle 246 for further information

NEW SOLID CORE FLUSH DOOR LINE

MFR'S DESCRIPTION: new line of framed block-core solid flush doors.

USES: residential, commercial and industrial.

SPECS/FEATURES: features incorporated in the door are core blocks of kiln dried, low density softwood, pressure butted at ends and sides to produce a core block assembly which eliminates voids. Veneers are bonded and applied with urea resin glue. All doors meet or exceed requirements of the U. S. Department of Commerce's Commercial Standard CS 171-58. Standard sizes are available in 1¾", 1⅜", and 1⅛" thicknesses with face veneers offered for stock doors in several standard and special grades and species. Optional selections for doors include functional straddle moulding light units in over 50 designs, straddle moulding wood louver units, heavy decorative frame units and medallions.

AIA FILE NO. 19-E-1

MFR: MORGAN CO.

Circle 247 for further information

POCKET DOOR FRAME CUTS PRE-ASSEMBLY

MFR'S DESCRIPTION: door frames designed to be used with all types of wall construction, with or without wood casing.

USES: industrial, commercial and

Circle 127 for further information about DARLINGTON BRICK, pp. 38-39 →

Oakland Auditorium, Oakland, California. Interior by Division of Architecture, City of Oakland Department of Public Works.

Looking for something new in panels?

YOU'VE FOUND IT. These translucent divider panels have textiles, weaves, wood, and even metal molded right into them. They give you almost unlimited choice of decorative design and color.

You can get them for exteriors or interiors. They're light in weight, rugged, and won't shatter because they are made of plastic and fibrous glass. They're resistant to solvents, easy to install and maintain.

The panels softly diffuse natural and artificial light. Choice of designs transmitting from 17% to 87% of natural or artificial light, as well as choice of thickness, helps you solve lighting and thermal control problems.

SELF-EXTINGUISHING FOR CODES. This paneling comes in a special grade that doesn't support combustion.

It's designed to meet safety codes for offices, schools, plants, hospitals. Made with Hetron®, the flame-retardant polyester plastic.

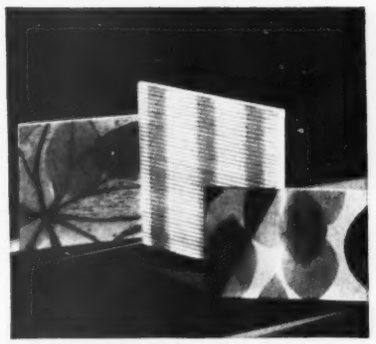
Panels containing this plastic are different. Even if flame gets a foothold, it doesn't spread.

That's why, when codes say "fire-retardant material," it's a good idea to write "Hetron" in your panel specification.

Then you're sure.

You can get a wide choice of daylighting and interior panels, corrugated or flat, made with this self-extinguishing plastic by leading fabricators in this country and Canada.

Write, and we'll be glad to tell you who they are.



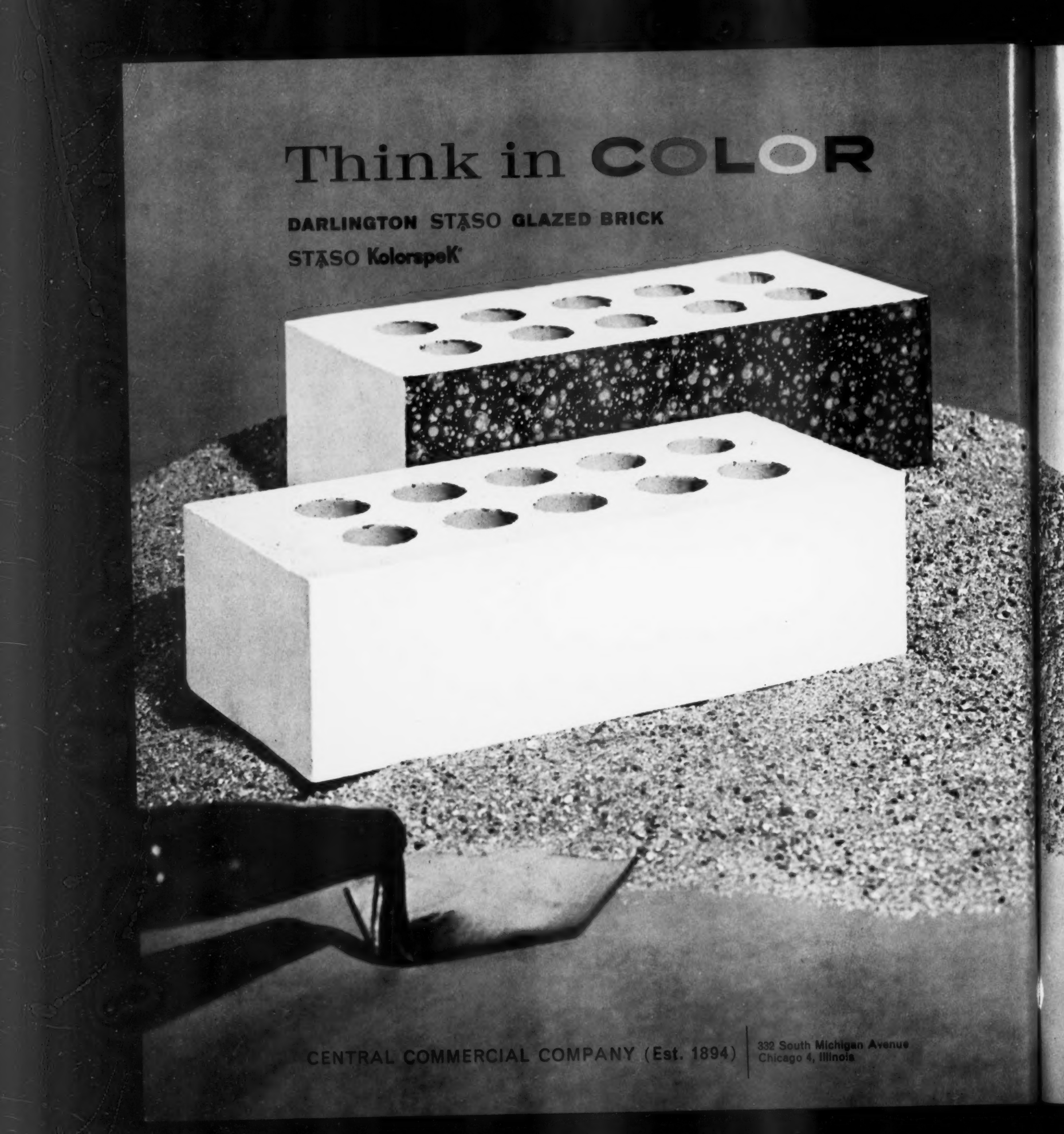
Attractive, sturdy—and safe—paneling shown above incorporates many designs. It is made with Hetron fire-retardant plastic by Panelcraft Company, San Francisco.

DUREZ PLASTICS DIVISION

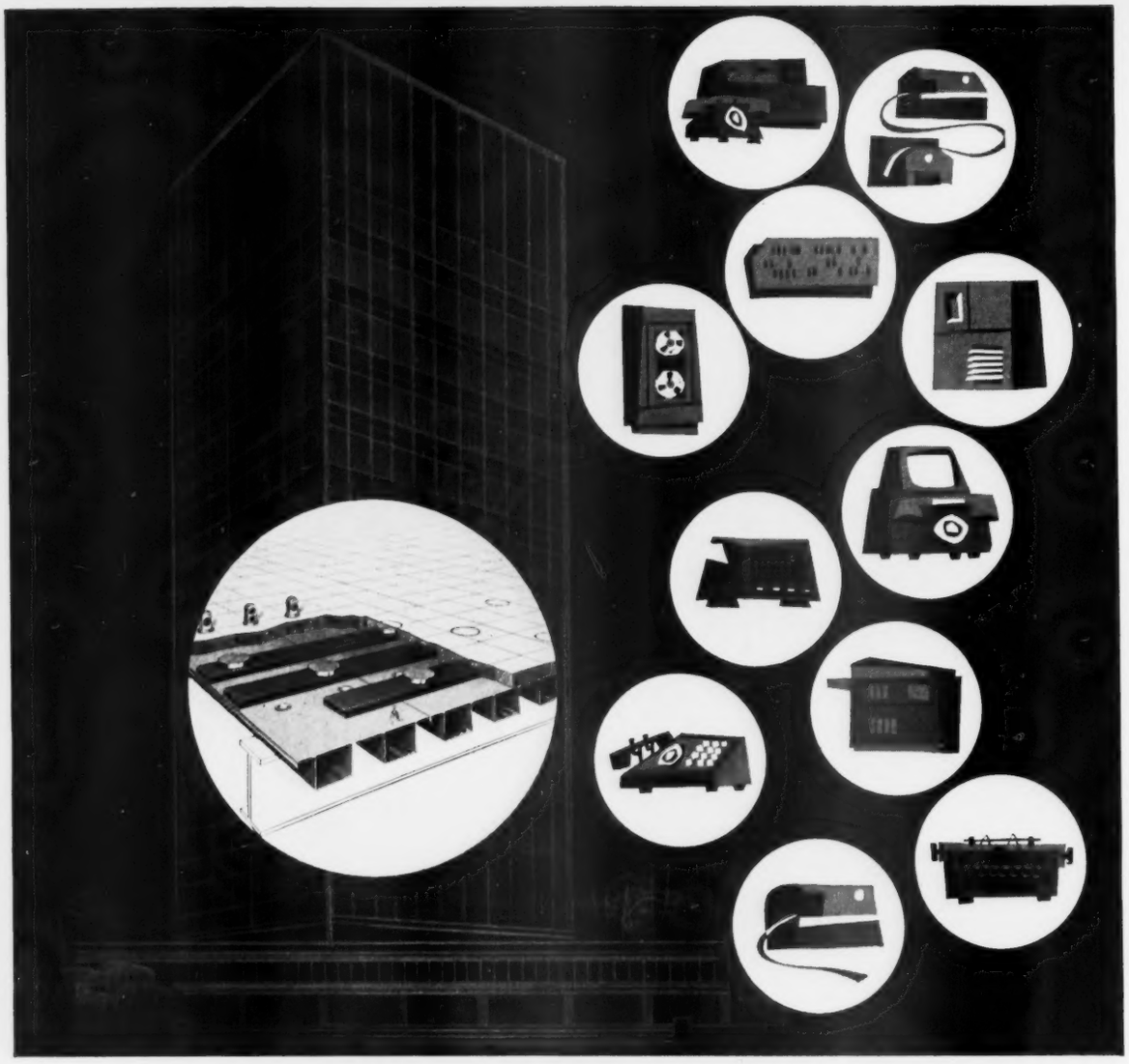
HOOKER CHEMICAL CORPORATION, 9206 WALCK ROAD, NORTH TONAWANDA, N. Y.

HOOKER CHEMICALS PLASTICS

Circle 126 for further information


Think in COLOR
DARLINGTON STASO GLAZED BRICK
STASO Kolorspek
CENTRAL COMMERCIAL COMPANY (Est. 1894)
332 South Michigan Avenue
Chicago 4, Illinois


Break away from the old-fashioned concepts of building design. *Think in color!* STASO Glazed Brick and STASO KolorspeK offer unusual opportunities for modern individual design expression. For complete information and color samples, call your Darlington STASO brick distributor or write Central Commercial Company, Chicago.
Brick Builds Better Curtain Walls
STASO
Permanent Beauty in Color Ceramics
PRODUCTS
Also Manufacturers of Darlington Royal Face Brick
*T.M. Pending—Patent Applied For
A.I.A. File No. 10-B—Glazed Units



Architects and engineers in planning raceway capacity for future electrification needs can be sure of only one thing—the demand will grow. Mahon "big-cell" M-Floors (cellular sections of lightweight, high-strength steel) provide extra-capacity to meet next year's requirements . . . outlet flexibility for tomorrow's modifications . . . and structural advantages for today's specifications. M-Floor installation is fast and easy—electrical wiring and servicing, through over-size duct openings, is quick and sure over every square foot of floor space. Find out what these cost-slashing versatile M-Floors can do for your projects . . . your costs. Contact your local Mahon architectural representative, see Sweet's File or write for informative Catalog M-61.

an extra-dimension of

MAHON M-FLOORS...

extra-capacity
for future demands

other Mahon building products • Aluminum or Steel Curtain Wall • Metalclad Fire Walls • Rolling Steel Doors • Long-Span M-Deck • Steel Roof Deck • Acoustical Metal Walls, Partitions and Roof Deck **Mahon construction services** • Structural Steel—fabrication and erection • Steel Fabrication—Weldments • Geodesic Domes—fabrication and erection.

SPEEDING AMERICAN CONSTRUCTION WITH METAL BUILDING PRODUCTS, FABRICATED EQUIPMENT AND ERECTION SERVICES

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THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
Manufacturing Plants—
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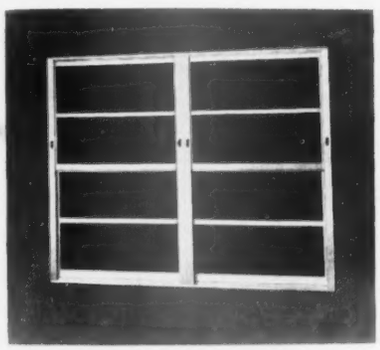
Sales-Engineering Offices in Detroit, New York, Chicago, Torrance and San Francisco
Representatives in all principal cities.

Circle 128 for further information

residential.
SPECS/FEATURES: track assembly eliminates metal headers. Instead, top mounting brackets are welded to track. Brackets fit around rough 2x4 header and can be quickly levelled and nailed. Wood nailing strips are mounted on the track for attaching wood trim. Steel split jambs and studs have brackets at top and bottom for quick nailing to rough header and floor. Hangers equipped with permanently lubricated nylon rollers. Rear hanger has a fixed height that automatically positions door at its proper height with respect to head jambs. Front hanger can be quickly adjusted to plumb the door. Assemblies come complete, ready for installation. Available for door sizes from 2′ to 3′.
AIA FILE NO. 16-L
MFR: JOHN STERLING CORP.
Circle 248 for further information



DOUBLE-HUNG WINDOWS MADE OF ALUMINUM

MFR'S DESCRIPTION: aluminum double-hung window, for installation in single or multiple units and adaptable to curtain wall systems.
USES: residential and commercial.
SPECS/FEATURES: window available in all commercial sizes, can be purchased with both conventional spiral balance and overhead spring balance with accommodations for both conventional and double-glazed units. Both units have stainless steel tapes. Window comes in all mechanical and electrochemical finishes. Made of aluminum, it is double-weatherstripped with wool pile. Frame is fully welded, and sash is a combination of welded and mechanical joints for removal and replacement without removal of frame.
AIA FILE NO. 16-E
MFR: ALBRO METAL PRODUCTS CORP.
Circle 249 for further information

PATTERNS FOR PRIVACY IN INSULATING GLASS

MFR'S DESCRIPTION: for applications calling for company's insulating glass where privacy is required without the stoppage of light.
USES: residential and commercial.
SPECS/FEATURES: insulating glass with the outer light in one of three pattern glasses. Patterns available as standard in the line include *Colonnade* and *Dappled* in ⅛″ and 7/32″ thicknesses, and *Heat Absorbing Mottled* in ⅛″ and ¼″ thicknesses. *Colonnade* is a linear pattern, while *Dappled* is a non-directional pattern with a gently mottled surface. The *Heat Absorbing Mottled* glass is a shade of green and is designed to reduce glare while absorbing solar heat. As with company's standard insulating glass line, patterns are available with either a ¼″ or ½″ insulating air space sealed between the pieces of glass. Pattern glass is furnished on the outside of the unit only.
AIA FILE NO. 26-A-9.
MFR: LIBBEY-OWENS-FORD GLASS CO.
Circle 250 for further information

WOOD

INTERIOR WALL BLOCKS WITH DEEP-CUT DESIGN

MFR'S DESCRIPTION: contemporary wall blocks in textured wood fiber board.
USES: residential and commercial.
SPECS/FEATURES: cameo and intaglio patterns are cut in 1″ blocks, 12″x 12″ in size. Choice of colors and fifteen standard designs. Designs range from simplest geometric forms to complex interlocking designs. Item, according to manufacturer, is easily applied to any smooth wall with modern adhesives or by nailing.
AIA FILE NO. 19-E-3
MFR: TECTUM CORP.
Circle 251 for further information

NEW PROCESS DEVELOPED IN WOOD TREATMENT

MFR'S DESCRIPTION: new process in the pressure-treatment of lumber and plywood.
USES: construction in wood.
SPECS/FEATURES: basis of new process is in the use of liquefied gas in a pressure vessel to deposit the preservative chemicals in the wood fiber. This is considered an improvement in the application of wood preservatives. Treated wood is unchanged in color, weight, size, strength, workability and glueability. It can be clean finished or painted. Treated wood is resistant to termites and decay. Treatment does not require rekiln drying. Treatment does not swell the wood and dry and finished-to-size parts may be treated without distortion or grain-raising. Preservative in treatment has a low vapor pressure and evaporates at an extremely slow pace. Price of the wood treated with the new application is in the range of other conventional pressure-treated woods.
AIA FILE NO. 25-B-17
MFR: KOPPERS CO., INC.
Circle 252 for further information

PHILIPPINE MAHOGANY FOR STAIR TREADS

MFR'S DESCRIPTION: premium grade Philippine mahogany stair treads offered as a company stock item.
USES: residential.
SPECS/FEATURES: stair treads of Philippine mahogany provided in random lengths, which for special purposes run as long as 18 feet, or can be furnished cut to specified lengths. Widths are 10½″ and 11½″ and are 1 1/16″ thick, with forward edge rounded. Custom widths also supplied, in addition to matching risers, hand rails, and banisters. Item designed to meet FHA standards for one and two living units.
AIA FILE NO. 19-E-4
MFR: INSULAR LUMBER SALES CORP.
Circle 253 for further information

OFFICE PARTITION SYSTEM WITH PREFINISHED PANELS

MFR'S DESCRIPTION: office partition system of prefinished components.
USES: office partition applications.
SPECS/FEATURES: partitions available in 2′x8′ and 2′x10′ sizes. The 1⅝″ partition thickness consists of a rigid core of insulation board faced on both sides with prefinished hardboard. Matching paneling, ⅝″ thick, has an insulation board backing faced on one side with prefinished hardboard. Matching doors come in 6′-8″ and 7′-11″ heights.
AIA FILE NO. 35-H-6
MFR: SIMPSON TIMBER CO.
Circle 254 for further information

← Circle 127 for further information about DARLINGTON BRICK, pp. 38-39

PRODUCTS, EQUIPMENT, MATERIALS

NEW LINE OF CHERRY WALL PANELING

MFR'S DESCRIPTION: new line of wall paneling, called *Imperial Cherry,* is available in three cherry wood grain finishes.

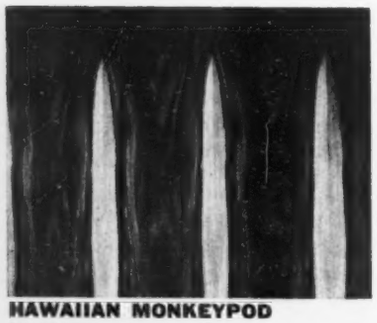
USES: residential wall paneling.

SPECS/FEATURES: low gloss satin finish is featured on this maintenance-free item. Factory machine polished, finished paneling has appearance of hand-rubbed furniture, manufacturer states. Finish has enough low angular sheen so that normal scuff or rub marks do not show, according to manufacturer. Item is resistant to humidity changes because paneling is free from grain checking or splitting. Finished panels are available in 4'x7' and 4'x8' foot sizes. Panels are deliberately mismatched and are random grooved.

AIA FILE NO. 19-E-6

MFR: ABITIBI CORP.

Circle 255 for further information



HAWAIIAN MONKEYPOD IN PLYWOOD PANELS

MFR'S DESCRIPTION: Hawaiian monkeypod mounted on Philippine mahogany for use as plywood.

USES: residential and commercial.

SPECS/FEATURES: Hawaiian monkeypod wood (*Samanea Saman*) has

PRODUCTS, EQUIPMENT, MATERIALS

been processed into plywood. This is dense wood from Hawaii and Fiji as distinguished from the coarser grained acacia of the Philippines also called monkeypod wood. Colors in the wood run from light yellow through the warm browns to near black. Many patterns are available. Standard sheets are 4'x8' in ¼" and ¾" thicknesses, packed 25 one-quarter inch sheets or 10 three-quarter inch sheets to the carton. Unless otherwise specified, panels are prefinished with three coats of flat satin lacquer and buffed.

AIA FILE NO. 23-L

MFR: ASAHI PLYWOOD CORP.

U.S. & CANADIAN DISTR: LANE PASKILL CORP.

Circle 256 for further information

FINISHES

SPRAY-ON VINYL FINISHES FOR METAL SURFACES

MFR'S DESCRIPTION: color vinyl finishes with controllable texture for steel or aluminum.

USES: phosphated steel or aluminum surfaces.

SPECS/FEATURES: system permits application of a multi-colored vinyl finish to products after fabrication. Since forming and welding are done before the finish is applied, no special care is required in fabrication. Vinyl finishes in color and controllable texture can be applied to either phosphated steel or aluminum by conventional or electrostatic spray techniques. Different colors and textures are obtained by changing the vinyl spray material. Coated rejects can be stripped and resprayed.

AIA FILE NO. 15-E

MFR: COATINGS DIV., METAL & THERMIT CORP.

Circle 257 for further information

STRIPPABLE COATING PROTECTS METAL SURFACE

MFR'S DESCRIPTION: strippable coating for metal.

USES: metal protection on building site.

SPECS/FEATURES: transparent vinyl coating applied to sheet, helps safeguard a surface requiring a high degree of quality. Once the fabrication or shipment is completed, coating can be removed by hand stripping or mechanically, by an air blast between the coating and metal. Coating will not leave a residue.

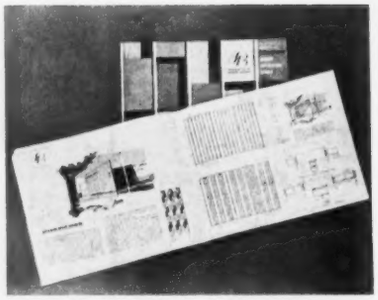
AIA FILE NO. 25-C-3

MFR: ALUMINUM CO. OF AMERICA

Circle 258 for further information

LITERATURE

Literature cited in this department is available from various manufacturers and associations free of charge, except where indicated. To obtain copies, circle the keyed numbers on the reader service cards facing pages 1 and 74.



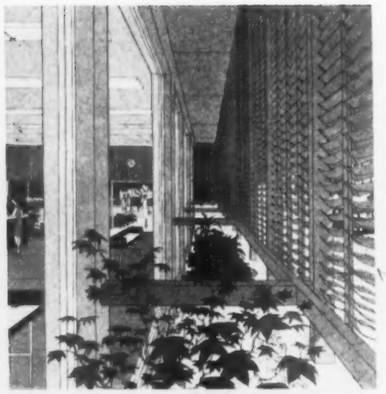
SCREEN SYSTEM DESIGNS

New booklet describes and illustrates manufacturer's system of components for forming interior and exterior screens. Booklet includes information about designs and applications, and is illustrated with full-color renderings and scaled architectural sections, elevations and details. A number of typical applications is illustrated. Alternate design approaches to each problem are also illustrated. In addition, information about design and fabrication is included, together with scaled details of all component parts. (18 pp.)

AIA FILE NO. 17-A

MFR: JULIUS BLUM & CO.

Circle 300



ARCADIA BRISE-SOLEIL

SUN CONTROL PANELS

A sun control system that consists of factory-fabricated aluminum grid panels which combines control of solar energy with flexibility in design, appearance and finish is discussed in a recently published brochure. Design, as discussed in the booklet, incorporates the principle of *inverse-planes*. Item is available in two configurations and in any color with *Duracron* thermosetting acrylic baked enamel finish and with various anodic finishes, or with other finishes on special order. Panels can be supported, cantilevered or suspended in a variety of ways. Typical installation details are supplied in the booklet.

AIA FILE NO. 35-P-1

MFR: ARCADIA METAL PRODUCTS

Circle 301

ALUMINUM CURTAIN WALL UNITS

Use of curtain wall systems made of aluminum are described and illustrated in a detailed booklet. Numerous already installed applications are covered along with detailed cross-section drawings. Details of manufacturer's custom, mullion and unit systems are included as well as a discussion of company's engineering, design, fabricating and estimating departments to aid architects in application of manufacturer's product. (36 pp.)

AIA FILE NO. 17-A

MFR: CUPPLES PRODUCTS CORP., DIV. OF ALUMINUM CO. OF AMERICA

Circle 302

LITERATURE

UNIQUE PLASTER SALE

A major Hollywood motion picture and television studio's plaster shop, equipped with more than $5 million worth of models and molds is being made available to architects. Brochure discusses in illustrated form the types of models and molds available. Various other items are also made available through this brochure. Only a limited supply of brochures is available. Write directly to: *Mr. Roy E. Long, Desilu Productions, Inc., 780 North Gower Street, Hollywood 38, California,* on letterhead.

Write manufacturer directly

STEEL STORAGE EQUIPMENT

A recently published booklet is intended for use as a time-saving reference tool to help pinpoint chief storage objectives and best ways to achieve them. Documented by photographs and descriptions, booklet points out 12 ways careful selection of storage equipment can aid efficient and safe storage of materials. Booklet contains 63 illustrations displaying manufacturer's line of steel storage equipment. (16 pp.)

AIA FILE NO. 35-i-15

MFR: PENCO DIV., ALAN WOOD STEEL CO.

Circle 303

PRE-ENGINEERED BUILDINGS

Illustrated manual describes manufacturer's line of permanent, pre-engineered metal buildings. Four types of buildings are shown, along with their structural features, applications, and standard accessories. Included in the manual are charts giving detailed specifications of the four building lines. Separate sections in the manual on each building type are illustrated with photographs and line drawings showing applications, and structural and assembly features.

AIA FILE NO. 17-A

MFR: BUILDINGS DIV., PARKERSBURG RIG & REEL CO.

Circle 304

NEW METAL ALLOY

Discussion of the uses and properties of a new metal alloy known as *T-metal* is covered in a new brochure. Alloy is basically zinc, titanium, copper, with traces of manganese and chromium, a combination designed to help overcome the major weaknesses in other zinc-rich alloys, according to the brochure. Architectural applications are discussed and illustrated along with a detailed listing of the technical properties and comparisons with other metals. (36 pp.)

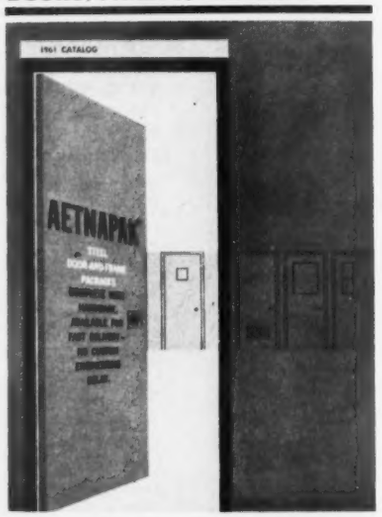
AIA FILE NO. 13-A

MFR: HYDROMETALS, INC.

Circle 305

LITERATURE

DOORS/PANELS/WINDOWS



DOOR-AND-FRAME PACKAGES

Revised pamphlet covers manufacturer's line of steel door and frame packages, complete with hardware. Pamphlet details a line of flush, hollow-metal doors with a choice of standard lights and muntin arrangements, and double-blade Y-type louvers. Doors discussed are made of 18-gauge stretcher levelled steel. Pamphlet says that door frames are made available either knocked down or set up and that the package can be ordered with or without hardware—doors and frames, doors separately, or frames separately.

AIA FILE NO: 16-A

MFR: AETNAPAK SALES, AETNA STEEL PRODUCTS CORP.

Circle 306

SCHOOL JALOUSIE WINDOWS

Brochure covering manufacturer's line of dual jalousie school window walls has just been released. Booklet includes cross-section architectural line drawings showing typical details on sills, mullions, jambs and other construction points. Other items covered in the brochure include expansion and contraction, louvers, louver clips, hardware, screens, storm sashes and aluminum framing members. One section is devoted to discussion of child protection, school protection and operation. Lighting and ventilation control are covered as well as maintenance and design.

AIA FILE NO. 16-L

MFR: CLEARVIEW CORP.

Circle 307

SLIDING DOOR HARDWARE

Sliding door hardware developed especially for use with "door-grade" flakeboards is subject of a new brochure. Suggested hardware based on door size, duty and model are covered along with various descriptions of design strength. Hanger assembly, hardware components and scale installation drawings are also shown.

AIA FILE NO. 27-A

MFR: ACME APPLIANCE MANUFACTURING CO.

Circle 308

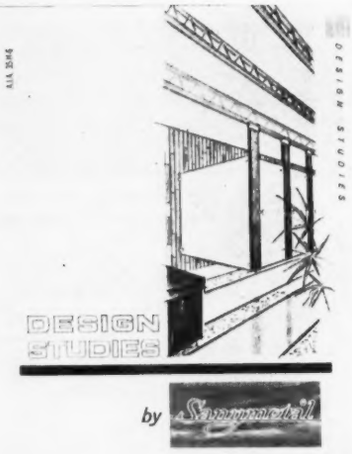
PLASTIC DOORS AND PANELS

General construction, performance, uses, and colors of manufacturer's line of plastic doors and panels are covered in a new booklet. Also discussed are other items in manufacturer's line including skylights and panels with honeycombed patterns.

AIA FILE NO. 19-E-13

MFR: MONOSTRUCTURE, INC.

Circle 309



WASHROOM PARTITIONS

A newly printed, full-color brochure discusses manufacturer's line of washroom partitions. Booklet contains sketches illustrating many installations of the four lines of partitions offered, including both ceiling-hung and floor supported types. Line offers a combination of 22 colors and includes a junior height for secondary school applications. (8 pp.)

AIA FILE NO. 35-H-6

MFR: SANYMETAL PRODUCTS CO., INC.

Circle 310

ROOFING/FLOORING

COMMERCIAL CARPETING

A two-color brochure shows 16 recent installations and 42 different patterns and grades, each designed to serve specific needs. Brochure is broken down into categories: churches and funeral parlors; stores, department stores, offices, banks and apartment houses; restaurants and theatres; bowling alleys, hotels and motels; schools, clubs and fraternal groups. Brochure points up services of manufacturer's contract depart-

ment. Of special interest to architects is the service of matching any specific existing design and color, or custom-weaving carpeting to specification. (12 pp.)
AIA FILE NO. 28-E
MFR: DOWNS CARPET CO., INC.
Circle 311

LIGHTWEIGHT AGGREGATE DATA

New edition of the *Lightweight Concrete Aggregate Data* provides details, specifications and data for uses of lightweight aggregate for roof decks, floor fills, granular fill insulation, heated and unheated grade level slab floors. Load test data and typical mix designs and physical properties are detailed.
AIA FILE NO. 3-D-3 AND 37-B-2
ASSN: PERLITE INSTITUTE, INC.
Circle 312

LINE OF ROOF DECKING

Roof decking for industrial and commercial buildings and cross-sections showing actual construction feature a new manual. Various steps of application are shown along with suggestions for use in different types of roof construction. A section also covers employment of steel decking for sidewalls and partitions in industrial and commercial buildings. (16 pp.)
AIA FILE NO. 12-C
MFR: THE R. C. MAHON CO.
Circle 313

GLASS ROOF COATING

Bulletin describes and illustrates application of manufacturer's glass reinforced roof coating. According to the bulletin, coating consists of a spun glass mat in roll form, plus a liquid emulsion. Material conforms to irregularities in room structure and bonds to under-surface.
AIA FILE NO. 12-A-2
MFR: BARLEY-EARHART CORP.
Circle 314

STATIC CONDUCTIVE LINOLEUM

Illustrated manual concerned with hazards of static electricity in the presence of explosive vapors and combustible substances, covers all pertinent facts on this floor covering. Included in manual are uses, specification and installation data, cost information, testing and maintenance procedures. (16 pp.)
AIA FILE NO. 28-E
MFR: CONGOLEUM-NAIRN INC.
Circle 315

UNDERLAYMENT PANEL

Detailed design and installation data on a subfloor-underlayment panel is available in a new booklet. Discussion centers on a 1⅛" plywood panel, with joints on all four sides, that requires supports 4' on center and helps improve floor framing and construction in residential buildings. Finish flooring is applied directly over this one-layer material, according to booklet. Other applications of the product are also discussed. (8 pp.)
AIA FILE NO. 19-F
ASSN: DOUGLAS FIR PLYWOOD ASSN.
Circle 316

HARDWARE

ELEVATOR ROLLER GUIDES

Manual consisting of basic operating information and detailed specifications on manufacturer's elevator roller guides has been issued. The packet, contained in standard size file folder, provides complete mechanical data on six-wheel roller guides for high speed, high rise cars; low speed, low rise cars and counterweights.
AIA FILE NO. 33-G
MFR: ELEVATOR SAFETY CO.
Circle 317

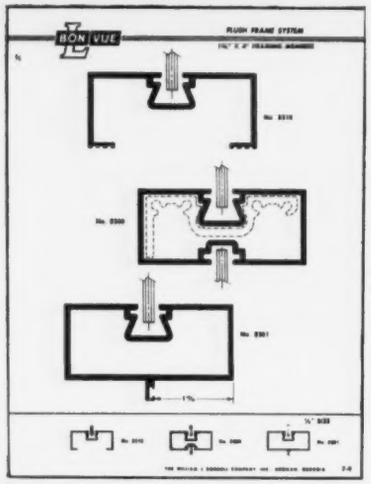
ROOFING MARBLE CHIPS

Booklet covers a color-impregnating process for roofing marble chips. Controlled treatment of chips used to produce the colors is discussed.
AIA FILE NO. 22-B
MFR: MARBLE PRODUCTS CO.
Circle 318

HIGH STRENGTH BOLTS

Specification and use of high strength bolts for field and shop fabrication of all types of structural steel assemblies are described in a new reference bulletin. Covering every facet of recent developments for fabricated structural joints, the illustrated manual contains design theory, specifications, documented cost and production studies and complete dimensional and physical data on bolts, nuts and washers.
AIA FILE NO. 27-A
MFR: RUSSELL, BURDSALL & WARD BOLT AND NUT CO.
Circle 319

LITERATURE



STORE FRONT SHAPES

Brochure showing detailed cross-section drawings of a line of extruded aluminum store front shapes is available. A total of 68 shapes is shown in both full size and quarter-size scale in black-and-white drawings on loose-leaf sheets to facilitate reproduction, tracing or copying. Sheets are standard-punched and enclosed in a stiff-cover folder. Portfolio contains 25 drawings covering box frame system, 15 covering flush frame systems and 14 renderings covering flush frame-sash system. Additional drawings are of head, jamb and sill covers, division bars and expansion joint framing.

AIA FILE NO. 26-D

MFR: THE WILLIAM L. BONNELL CO., INC.

Circle 320

VINYL COATED FLASHING

Brochure discusses the applications and specifications of a zinc alloy sheet metal with a vinyl resin, produced with a ribbed pattern and designed to resist caustic alkalies in green concrete or mortar mix. Line drawings display possible applications in cavity and solid walls with additional information obtained in a question and answer format.

AIA FILE NO. 12-H

MFR: THE CHOMES CO., INC.

Circle 321

WELDED STEEL BEAM CLIPS

Temporary steel beam connection clips and seats are discussed in manufacturer's pamphlet. Savings on actual jobs with the use of clips and seats to hold steel beams, rather than temporary bolts, are cited. Reduction of mill tolerances in construction of multi-storied steel frame buildings is discussed. Pamphlet is well illustrated with shop drawings and typical applications in the assembly of welded steel structures. Manufacturer points out that these connection units are only recommended for temporary use and have no part in supporting final beam loads which are carried by the field welding. (12 pp.)

AIA FILE NO. 13-C-3

MFR: SAXE WELDED CONNECTIONS

Circle 322

SNAP TOGETHER FRAMING

A series of flush glazed snap together aluminum framing tubes is covered in a new booklet. Installation of the store-front design items is discussed in detail with scale renderings used as aids. Booklet cites several new designs in the line.

AIA FILE NO. 26-D

MFR: ACME METAL MOULDING CO.

Circle 323

MULTI-COLORED METAL TRIM

Availability of an anodized, multi-colored, aluminum foil and gauge trim with pressure-sensitive adhesive backing is announced in a new brochure. Manufacturer points out in booklet that trim is not silk-screened or printed but colors are permanently anodized into the aluminum. Available in sheet or strip form, trim can also be embossed, pre-formed or cut-to-shape. Any combination of colors can be used in addition to various patterns in stock or custom designs. (6 pp.)

AIA FILE NO. 16-C

MFR: ANODYNE, INC.

Circle 324

SAMPLE NAIL FOLDER

Handy nail folder contains samples of proper underlayment fasteners and describes and illustrates correct application of these fasteners for guaranteed performance with manufacturer's floor underlayment. Folder contains a sample nail of the proper length for each thickness of manufacturer's floor underlayment and instructions for correct spacing of these fasteners.

AIA FILE NO. 27-A

MFR: SILVATEK DIV., WEYERHAEUSER CO.

Circle 325

PLUMBING

LINE OF BATHROOM FIXTURES

Booklet picturing architect-decorator designed bathrooms showing color schemes and fixture arrangements has been released recently. Manufacturer's complete line of plumbing fixtures and fittings is discussed. Booklet was prepared especially as an aid to selection of plumbing fixtures for residential applications. (24 pp.)

AIA FILE NO. 29-J

MFR: KOHLER CO.

Circle 326

FOOT CONTROL VALVES

New manual on automatic water service systems, designed with foot control valves and service fittings is now available. Three types of floor mounted pedal valves are shown including a double unit for *Hot* and *Cold*, a mixing valve and a single pedal control. Established applications for foot control systems are demonstrated for sanitation, water conservation and hands-free convenience for hospitals, maintenance, laboratories, doctors and dentists. (4 pp.)

AIA FILE NO. 29-H-5

MFR: T&S BRASS & BRONZE WORKS, INC.

Circle 327

SHOWER/BATH CONTROL

Manufacturer's latest shower and bath control is described in a new folder. Two models are described, for shower only or for shower and bath installations. Cross-section illustrations describe mechanics of control. Features such as a choice of finishes, a safety stop which limits maximum temperature thermostatically, and a vandal-proof lock screw for institutional and commercial applications are shown. (4 pp.)

AIA FILE NO. 29-D-21

MFR: LEONARD VALVE CO.

Circle 328

SANITARY FITTINGS

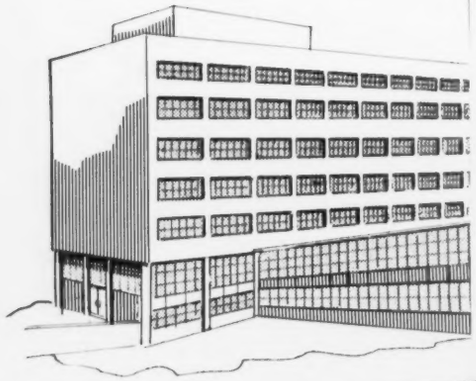
Booklet illustrates lines of stainless steel sanitary fittings, valves and tubing. Eighty-two product illustrations are included along with a detailed price and size list. Items of nickel alloy are also shown. Sanitary

Circle 139 for further information about Wm BONNELL →


For a Better Shape
specify
BON-VUE!
BON VUE
Extruded Aluminum
STORE FRONT SHAPES
Details Available upon Request
THE WILLIAM L BONNELL COMPANY, INC., NEWNAN, GEORGIA

No. 27 CLOSER solves door control problem at New York Univ. Medical Center in two-year test installation

"The first door control to stop glass breakage caused by strong East River winds..."
says **P. W. Barton,** CONSTRUCTION COORDINATOR



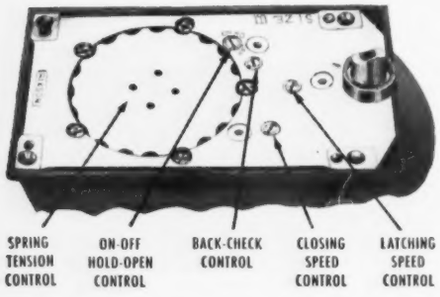
RIXSON® no. 27

TWO-YEAR FUNCTIONAL TESTS UNDER EXTREME CONDITIONS

This is one of twenty-two test installations of the No. 27 made approximately two years ago in locations throughout the U.S. and Canada where wind and other conditions were exceedingly severe.

Skidmore, Owings and Merrill, Architects

A COMPLETELY NEW DOOR CLOSER DESIGN
no. 27 offset hung **no. 28 center hung**



These New York University Medical Center south entrance doors are exposed to powerful East River winds which blow from *both directions*. Before the No. 27 closers were installed there was frequent glass breakage and closer damage.

The back-check of the No. 27 closers, locally adjusted for *firm* resistance, together with the positive dead stop, now keep the opening action of these doors under constant control. The closing action of the doors is under dependable hydraulic check with closing and latching speeds each independently adjusted to cope with the wind conditions.

Complete literature and details on the No. 27 offset hung and No. 28 center hung closers will be mailed on request.

THE OSCAR C. RIXSON COMPANY

9100 west belmont ave.
franklin park, illinois

CANADIAN PLANT:
43 Racine Road
(Rexdale P.O.) Toronto, Ont.

Circle 140 for further information

LITERATURE

qualifications as determined by government and private industrial associations are given. (18 pp.)
AIA FILE NO. 29-B-3
MFR: TERRISS-CONSOLIDATED INDUSTRIES
Circle 329

MASONRY

MARBLE CURTAINWALL PANELS
Construction of marble curtainwall panels of thickness of 1½" to 3" is covered in company's new brochure. Weight factors, "U" values and close-up cross-section applications for flush-mount, grid-wall or window-wall panels are given in detail. Typical specifications are included along with a discussion on the design and fabrication of marble into curtainwall panels.
AIA FILE NO. 17-A
MFR:VERMONT MARBLE CO.
Circle 330

MASONRY INSULATION
Economic details of insulating brick cavity or concrete block walls with a water-repellent masonry fill are now available in a new brochure being distributed to architects and engineers. Installation costs, and savings in annual heating and air conditioning costs for any part of the country are discussed. Tables provide information on the thermal efficiency and heat transmission of various types of cavity and concrete block walls.
AIA FILE NO. 37-D-3
MFR: ZONOLITE CO.
Circle 331

CERAMIC TILE LINE
A brochure containing the color palette of a new tile line has been published by a manufacturer of ceramic products. Brochure offers reproductions of ten plain and nine crystal glaze colors of tile for walls, counter tops and bathroom floors. In addition, it shows 16 colors of unglazed ceramic mosaics available in the new line, along with mosaic blend patterns available in glazed and unglazed tile.
AIA FILE NO. 23-A-2
MFR: GLADDING, MCBEAN & CO.
Circle 332

STRUCTURAL CLAY PRODUCTS
A complete line of structural clay products for interior and exterior uses in a variety of applications is described and illustrated in a new brochure. Other products discussed include numerous types and sizes of glazed and unglazed facing bricks, products are discussed and illustrated to show the variety of shapes, textures and colors to help meet requirements in industrial, commercial, institutional, public and residential building fields. (24 pp.)
AIA FILE NO. 10A-B
MFR: NATCO CORP.
Circle 333

ESTIMATING DATA CHART
A new estimating data chart gives information on mortar requirements for various types of brick and structural tiles. Guide is a ready reference guide for mortar requirements per thousand units, or per thousand square feet of popular type brick and structural tile with joints ranging from ¼" to ½" of thickness.
AIA FILE NO. 5-A
MFR: PRE-MIX CORP.
Circle 334

ACOUSTICAL CLAY TILE
The difference between sound isolation and sound absorption and their related importance to architects is covered in a new booklet. Also offered is an argument for more sound absorbing and isolation in walls rather than in ceilings; arguments for solid and fibrous acoustical materials used jointly are also presented.
AIA FILE NO. 39-B
ASSN: THE FACING TILE INSTITUTE
Circle 335

LIGHTING

UNDERWATER LIGHTING
Literature includes illustrations, specifications and dimensions on line of cast bronze low voltage swimming pool lights for use in new or existing concrete, gunite, tile, steel or glass fiber pools. Also included are fountain, cascade and pond lights, deck boxes and fully submersible watertight junction boxes in cast bronze or anodized aluminum.
AIA FILE NO. 31-F-30
MFR: STONCO ELECTRIC PRODUCTS CO.
Circle 336

LIGHT FIXTURE EFFICIENCY
Brochure describes new series of fluorescent lighting fixtures designed for better than 80 per cent efficiency and describes how these fixtures can be installed on stems or directly on ceiling surface. Several mounting arrangements are shown to help simplify installation and different models, types and sizes are detailed.
AIA FILE NO. 31-F-23
MFR: LITECRAFT MANUFACTURING
Circle 337

TROFFER DIFFUSER BOOKLET
A new booklet, which gives complete information on an air diffuser for troffers, has been published. Discussed in booklet is manufacturer's diffuser which permits coordination of air distribution and illumination in a single ceiling unit. Booklet contains selection and performance data, typical ceiling applications and data on installation and specifications. (8 pp.)
AIA FILE NO. 30-J
MFR: ANEMOSTAT CORP. OF AMERICA
Circle 338

OUTDOOR POST LAMPS
Booklet covers various models, sizes, designs and uses of manufacturer's line of outdoor lamp posts and lanterns. Also covered in booklet is an automatic light sensitive switch that turns on outdoor lamps.
AIA FILE NO. 31-F-22
MFR: PROGRESS MANUFACTURING CO.
Circle 339

FLUORESCENT FIXTURES
Illustrated brochure features series of shallow, surface mounted fluorescent lighting fixtures and ten diffusing elements. Brochure contains a check chart for rapid determination of the availability of diffusing elements for each of three rectangular and three square fixture sizes. Technical data and information includes: specifications, construction features, installation and maintenance data, coefficients of utilization, illumination area estimation, mounting dimensions, and ordering information. (28 pp.)
AIA FILE NO. 31-F-23
MFR: GLOBE ILLUMINATION CO.
Circle 340

METAL SYSTEMS

CORROSION CONTROL SYSTEMS
Illustrated folder is a guide to primary protection and preventive maintenance of all metal surfaces subjected to chemical attack of acids and alkalies, fumes and gases, active industrial solvents and severe industrial weathering. Provides details on the principal protective systems and includes a color chart showing wide

LITERATURE

range of colors available. Various corrosion control systems as perfected by manufacturer are discussed.
AIA FILE NO. 15-M
MFR: TRUSCON LABORATORIES
Circle 341

INSULATING METAL STRUCTURES

Tabular data and illustrations of insulating metal structures with manufacturer's batts and blankets of mineral wool are covered in a recently issued bulletin. Sound, as well as climate control is discussed along with installation and handling. Described also are manufacturer's products useful in construction of metal buildings, including pipe and duct insulations. (6 pp.)
AIA FILE NO. 37-C-1
MFR: JOHNS-MANVILLE CORP.
Circle 342

LINE OF STEEL PRODUCTS

Pertinent information on manufacturer's line of steel products is offered in a new brochure. Items included in the booklet include triangular girders, beams and girders, square columns, vertical member longspan joists, tied arch-beams and prefabricated buildings. Specifications, illustrations, and other technical data are included on many of the products. (8 pp.)
AIA FILE NO. 13-A-1
MFR: SHLAGRO STEEL PRODUCTS CO.
Circle 343

EXPANDED METALS

An architectural expanded metal brochure pictures new design opportunities for decorative meshes with photographs of actual job applications. Framing, finishing and fastening details supply data on manufacturer's line of expanded metal meshes with applications as decora-

LITERATURE

tive fronts, sunshading, railing guards, fencing, directional screening, room dividers and partitions, and signs. (16 pp.)
AIA FILE NO. 14-M, 15-T
MFR: UNITED STATES GYPSUM CO.
Circle 344

STAINLESS STEEL MAGAZINE
A specific issue of manufacturer's corporate magazine is available to architects and engineers. Issue deals with the role of stainless steel in the architectural market and outstanding illustrations of applications are included. (8 pp.)
AIA FILE NO. 15-H-1
MFR: UNION CARBIDE METALS CO., DIV. OF UNION CARBIDE CORP.
Circle 345

ANODIZED ALUMINUM GRILLES
Several new patterns and applications of manufacturer's line of grilles and screens are illustrated and described in a new brochure. Shown in color is an application of manufacturer's technique which permits a pattern variation in religious applications. In addition to new patterns, two new uses of the grilles are outlined. These applications combine anodized aluminum with plastic ma-

LITERATURE

terials to create lighting effects or standard illumination of public spaces. (10 pp.)
AIA FILE NO. 14-B-6
MFR: MORRIS KURTZON, INC.
Circle 346

ALUMINUM ALLOY SELECTOR

Principal selector chart outlines detailed data on ten most used aluminum alloys, including applications, uses, strengths, thermal and electrical conductivity, density, specific gravity, melting range and manufacturing limits. Basic manufacturing data is augmented with reference charts on weights, tolerances, fabrication characteristics, available finishes, hardening properties and embossing designations. Selector chart includes aluminum alloy sheet, coil and blank data, which are summarized concisely in this three-way design data file.
AIA FILE NO. 15-J
MFR: FAIRMONT ALUMINUM CO.
Circle 347

MISCELLANY

INSULATED CURTAIN WALLS

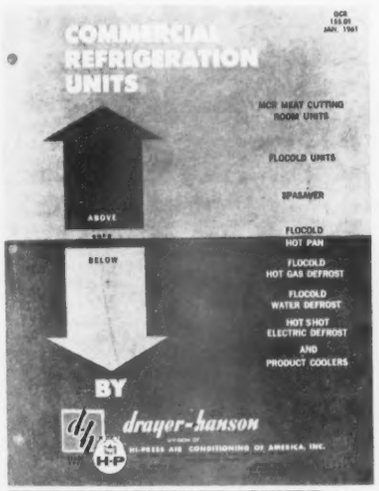
Thermal properties, materials and manufacture of a line of insulated metal curtain walls and fire walls are covered in a recently published brochure. Detailed specifications, a load table, and architectural treatment suggestions are given. (16 pp.)
AIA FILE NO. 17-A
MFR: THE R. C. MAHON CO.
Circle 348

CONTRACTOR'S BUYING GUIDE

Contractor's Buying Guide is a new illustrated booklet describing specifications, installation techniques and

LITERATURE

list prices of home and commercial equipment marketed by the manufacturer. Products include ventilating fans, range hoods, bathroom ventilating units, electric heating equipment, radio/intercom systems, and automatic exhaust fans. Guide fits in suit pocket and is designed as an architect, engineer and contractor on-the-job reference book. (66 pp.)
AIA FILE NO. 35-N
MFR: HUNTER DIV., ROBBINS & MEYERS, INC.
Circle 349



REFRIGERATION BROCHURE
Manufacturer's line of commercial refrigeration units are subject of a new booklet. Literature covers a broad range of industries and services concerned with phases of product (produce cooling or storage)—at design, specifying, contracting and service levels. Product-by-product highlights of specific uses and design features help guide the specifier in selection of equipment. Brochure presents manufacturer's total of 191 models and discusses each in detail.
AIA FILE NO. 30-F-22
MFR: DRAYER-HANSON DIV., HI-PRESS AIR CONDITIONING OF AMERICA, INC.
Circle 350

REVERBERATION SYSTEM
Brochure illustrates acoustical equipment designed for churches and concert halls. Manufacturer explains how reverberation is created by recording the sound and reproducing it as often as possible through selected speakers from front to back of hall. Brochure further explains how reverberation can be adjusted for the type of sound. Photographs, block diagrams, and a table are included.
AIA FILE NO. 39-D
MFR: WESTREX CORP.
Circle 351

LITERATURE

LUMBER INDUSTRY FACTS

New edition of booklet contains copious facts and figures on forest resources, lumber production, consumption, stocks and shipments, industry employment, exports-imports and financial statements. For the first time data is also included on the wholesale and retail lumber trade, on research expenditures and several new tabulations. Publication is intended as a reference source. Facts related to effects of the lumber industry on transportation systems, imports, exports and national consumption, by types and species are also covered. An important note made is that lumber growth now annually exceeds removal in the United States by about 25 per cent. Included are 93 tables of statistics. (56 pp.)

AIA FILE NO. 19-A

ASSN: NATIONAL LUMBER MANUFACTURERS ASSN.

Circle 352

ASBESTOS/ASPHALT DATA

Bulletin *AFD-17A* covers the application of asbestos fiber to dense graded asphalt paving mixes. Bulletin describes the major problems in design of bituminous pavement and in tabular form covers the pre-mixing recommendations of the manufacturer for correcting these conditions through control of variables such as asphalt and asbestos content, asphalt penetration, aggregates used, temperature of mixing and compacting, surface texture and filler content.

AIA FILE NO. 12-A-1

MFR: JOHNS-MANVILLE INTERNATIONAL CORP.

Circle 353

SHORT SPAN STEEL BRIDGES

15 Ways to Reduce the Cost of Short Span Steel Bridges, has been published as an aid to bridge designers. Booklet was prepared to acquaint bridge engineers with recent developments and significant ideas in steel bridge construction. Booklet stresses simplified details of fixed and expansion bearings, diaphragms and drainage structures, and suggests design simplifications which present opportunities for sizable cost reductions. In all, the booklet presents 15 ways to reduce the cost of short span steel bridges without sacrifice in quality. (8 pp.).

AIA FILE NO. 13-A-1

ASSN: AMERICAN INSTITUTE OF STEEL CONSTRUCTION

Circle 354

LITERATURE

FAN AND HEATER BOOKLET

Brochure discusses manufacturer's line of exhaust fans, blowers and ceiling heaters. Covering new square exhaust fans and several new ceiling heaters, new literature also features an illustrated index page for fast reference and a brief, illustrated discussion on advantages of square fan design. Sizes, finishes and accessory items, plus dimensional drawings for every fan and heater, are also included. (10 pp.)

AIA FILE NO. 30-C-43/30-D-1

MFR: EMERSON ELECTRIC COMPANY

Circle 355

STRUCTURAL STEEL TUBING

Data contained in brochure is aimed toward furnishing the architect and engineer with a hand reference when designing with tubing, and when using tubing as a basic structural material. Brochure has 55 photographs of application and product illustration. In addition, 63 tables and graphs give all vital information on manufacturer's product. (59 pp.)

AIA FILE NO. 13-D/H

MFR: REPUBLIC STEEL CORPORATION

Circle 356

EXTERIOR COLOR TRENDS

Popular trends of the past ten years in exterior house colors are shown in a new brochure. Demands for different colors in roofing, exterior walls, sidings and trim are covered. Decline of regional preferences in paint colors is discussed with final item in booklet a look at the future and a forecast of the colors falling and rising in national preference. (6 pp.)

AIA FILE NO. 25-B-25

MFR: MONSANTO CHEMICAL CO.

Circle 357

REINFORCED CONCRETE CONSTRUCTION

Advantages and new design techniques of monolithic light weight concrete joist construction are described in a new manual. Wire-bound manual contains isometric details and cross section drawings of all manufacturer's concrete joist construction with tabulated data for steeldomes, flange forms, adjustable forms and long forms. It is illustrated with details and on-the-job construction photos. In addition, manual describes related items such as anchorage devices, underfloor electrification, ceiling construction, reinforcing bars, spirals, welded wire fabric and accessories. A section of manual lists more than 350 recent typical construction projects in which this monolithic concrete joist construction was used. (68 pp.)

AIA FILE NO. 4-E-6

MFR: CECO STEEL PRODUCTS CORP.

Circle 358

Circle 156 for further information →

ABSTRACTS

The city as experience

Lewis Mumford, author of "The City in History," published recently (see review, page 68) was also a principal speaker at the 1961 AIA Convention in Philadelphia. Following are excerpts from his address to the Convention:

"In the present discussions, there are two main camps; those who wish to preserve at least the central core of the city, and those who are eager to assist in bringing about its dissolution. But too often their efforts are indistinguishable. The people who are trying to save the city are seeking to save the very things that cause their neighbors to move out—mere bigness, speculative confusion, congestion, or empty ostentation, on the scale of New York's Lincoln Center. Nothing has done more harm to the genuine culture of the city than the large mass of urban renewal and public housing projects from New York to San Francisco.

"With a few exceptions, notably in Philadelphia and Baltimore, these sterile 'improvements' have too often removed the living organs of the city and replaced them with an expensive but profitable mechanical substitute. Too often, under the illusion that they have assisted in an urban birth, the planners and architects have actually performed a hysterectomy. . . .

"The city is an aesthetic experience, an educational experience, and a dramatic experience; and no part of a city is properly planned if it does not contribute its quota of visual joy, of vivid human contacts, and of purposeful and meaningful activities that sustain the human spirit. . . .

"The cultural requirements of the city can be met only by multiplying the places where lovers can meet, where friends can walk and talk, where colleagues and associates can hold long discussions, without benefit of the tape recorder, where parents and children can occasionally come together on common ground, in an environment that contrasts with and complements that of the home; where individual persons can quit the lonely crowd and in solitude find the companionship and the stimulus they need. Our present dehumanized improvements produce only blankness and boredom. Culture needs an environment that reflects human purpose and human imagination: open spaces, with gardens, for meeting: natural beauty preserved, and if possible, enhanced and carried by architectural beauty, the whole immune to the pressures of technology and finance. We must stop spending astronomical sums on technological absurdities that are destroying the city and creating an empty and boring life; and we must invest generously and widely in the essential small-scale activities that will restore initiative and power and confidence to the individual person and the group."

The first modern city

In his address to the 1961 AIA Convention in Philadelphia, Professor Bruno Zevi set himself the task of defining the characteristics of a modern city. Without knowing what these are it is very difficult to proceed with planning. Following is an excerpt from his speech which casts an interesting light on what a famous historian has called the "first modern city:"

"Well, where can we start to understand what a modern city is? Oddly enough, I started way back from 1492, just the year of the discovery of America. This is what happened. A few years ago, I was reading the famous historian, Jacob Burckhardt, and all of a sudden, I was struck by a sentence. After visiting Ferrara, a town between Bologna and Venice, in 1860, Burckhardt wrote: 'Ferrara is the first modern city in Europe.' He did not give any explanation for this amazing interpretation. I looked into town-planning literature, but found very little about Ferrara. Many authors were repeating Burckhardt's sentence, but none would explain the reasons for it. Finally, I decided to devote a few years to the study of this town. Last year, on the centennial of Burckhardt's statement, I published a book about it. In a very few words, these were my three conclusions:

"*1* Ferrara could be defined as the first modern city in Europe because there was a man who in 1492 designed a master plan for its expansion. He made the city three times as large as it was during the Middle Ages and the early Renaissance. It was, in a way, an open plan, because the territory urbanized in 1492 has never been completely developed even today. This approach was certainly new, and in basic contrast both with the pragmatic attitude of the Middle Ages, when planning and building were almost synchronous activities, and with the Renaissance habit of inventing abstract, ideal, and static cities.

"*2* Such an extensive plan could not be implemented throughout by a predetermined third dimension. The planner of Ferrara could not build the whole town; he had to have some confidence in its natural growth, and leave something for future architects to do. But he was an architect himself, and knew that a plan is meaningful only when it gets a third dimension, that is, only if architects make it true. And here was his genius. He was able to identify the few key structures of the new town that would guarantee for four centuries and a half the urban pattern. Mind you: these focal points were not monumental plazas or princely roads, but sometimes very small buildings at the corners of secondary streets which, even when isolated, would suggest the image of the city. A flexible image, so that it worked, yet a precise one, so that it could not be betrayed.

"*3* Lastly, this man, Biagio Rossetti, spent about 10 years developing the new section of Ferrara, but then he spent about twenty years in renewing the old city. At the end of his life, in 1516, he had integrated the old city with its Addition, thus creating a new modern organism.

"There it is again. Ferrara was a modern city because it grew coherently in relation to the same basic problems of any organic culture of cities: the measure of the city, the passage from its plan to its architecture, the approach to urban renewal. The answers are naturally different, but the main questions remain perhaps the same, in 1492 as in 1961."

Housing for the aged

Making housing available to our aged in large enough quantities and high enough quality will entail a radical change in attitude as well as in design construction methods. Sidney L. Katz, FAIA, of New York discussed this problem in a recent address given to the New York Chapter, AIA, and sponsored by the National Council on the Aging. After describing the seriousness of the problem and setting forth the advantages of preassembled building components in this field, Mr. Katz presented the following recommendations:

"If ever there was a right time and a right reason for developing dwelling unit mass production techniques, it is now and in this field.

"The design requirements of housing for older people, though quite special as to health and safety requirements, are actually much simpler in over-all programming than those for the growing family with two or three children. We have previously discussed the special standard requirements for this type of housing, but there is still another factor which is becoming more and more evident; except for regional environmental variations, spatial, health, safety, and aesthetic demands are sufficiently uniform in housing

(Continued on page 61)

Main lobby of the new Reynolds Area Joint High School located near Greenville, Pennsylvania, showing one of the decorative designs created through the use of Natco Vitritile structural clay facing tile.

Some of our best salesmen are customers!

We admit that we would find it difficult to tell our Natco Ceramic Glazed Vitritile sales story any better than three men who were responsible for its extensive use throughout the new Reynolds Area Joint School in Western Pennsylvania. So . . . we defer to the experts!

DONALD E. HUNTER—*Partner in architectural firm of Hunter, Heiges & Gross:*
"We wanted to use a material that would require little maintenance and offer a wide range of stimulating colors that would hold fast through the years. That's why we specified a ceramic glazed product."

DAVIS A. CHIODO—*H. H. & G. supervisor of selection and application of color materials:*
"Since we had so many colors available through the use of Vitritile, it would have been foolish *not* to take advantage. With Vitritile the overall color scheme will *always* retain the architect's original idea."

PARK LENHART—*Masonry Contractor:*
"Vitritiles' 8W Series larger unit size and smooth, ground edges resulted in an estimated 8% to 10% reduction in laying time. This savings, coupled with a substantial savings in material costs, resulted in lower *overall* costs."

As we said . . . "Some of our best salesmen are customers!"

Vitritile comes in three nominal face sizes: 8"x16", 5⅓"x12" and 5⅓"x8", in 2", 4", 6" and 8" thicknesses.

Today's idea becomes tomorrow's showplace . . . when Natco structural clay products are in the picture

natco corporation

GENERAL OFFICES: 327 Fifth Avenue, Pittsburgh 22, Pennsylvania . . . Branch Offices: Boston • Chicago • Detroit • Houston • New York • Philadelphia • Pittsburgh • Syracuse Birmingham, Ala. • Brazil, Ind. . . . IN CANADA: Natco Clay Products Limited, Toronto

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open sesame to Bid Shopping
questionable substitutions."

Why sheet rubber flooring was selected for patient areas in Presbyterian Hospital modernization

The problem of infectious Staphylococci germs tipped the balance in favor of sheet rubber flooring in the recent modernization of Presbyterian Hospital, Charlotte, N. C.

The architects reasoned that fewer seams and cracks would mean fewer hiding places for this elusive hospital menace. To achieve an installation with a minimum of joints they specified sheet rubber flooring—tightly fitted by overlapping and double cutting—coved up the walls to normal base height.

The floors are warmly attractive, with terrazzo styling in rubber that provides an impressive overall design effect.

Sheet Rubber flooring has it for hospital patient areas—quiet comfort underfoot, easy to maintain, with unlimited design and color possibilities. And the colors go clear through—no laminations!

Two styles to choose from: Flexi-Flor in 20 marbleized colors—Tara-Flor in 12 terrazzo color combinations.

Wall-Flex (rubber wall covering) is ideal for hospital patient areas. Designed for durability and attractiveness (14 pastel mottled colors), Wall-Flex won't mar, nick or scratch. Outstanding dimensional stability, low maintenance cost and proven past performance guarantee long service and economy.

WRITE TODAY FOR SAMPLES AND LITERATURE

THE R.C.A. RUBBER COMPANY

1833 EAST MARKET STREET • AKRON, OHIO

An Ohio Corporation of Akron, Ohio

Circle 159 for further information

ABSTRACTS

(Continued from page 58)

for older people, to encourage universal acceptance of mass produced mass assembly techniques.

"Most builders on large scale projects today, use field assembly methods of one type or another. With the development of more mass assembled components their field assembly methods could be further simplified, made less time consuming and also less costly. Builders could then concentrate on proper land development planning which is so essential in creating better communities today. . . .

"I do feel that we are still some time away from the completely prefabricated typical American family house, because the typical American families' needs are constantly changing in scope and detail. This is not so with housing for older people.

"The components of housing for older people if properly developed could be used in the entire national market of 100,000 to 125,000 private houses, and 50,000 to 60,000 rental units annually. If this were done, we know that with the great American ability in the area of product development, we could expect these components to be outstanding examples of their genre; functionally and aesthetically as well as conducive to a healthful, safe and happy environment.

"How can we institute such a process and development? *First*, if we can convince the builders that our statistics are correct, I believe they will all agree that this is not only a growing market, but also an ideal market for the use of mass produced (pre-assembled) components.

"*Secondly*, I would suggest that a national research crash program be instituted by a task force representing the builders' organizations, architectural schools, and related agencies in the field in order to produce the required components. I also suggest that this program be carried out as a series of regional area design research projects and that they be sponsored by the building organizations in each of the four regions in cooperation with four schools of architecture—one in each region—for the purpose of developing the designs for these components. The program could be supervised and directed in its over-all research on standards for social, health, safety and aesthetic requirements by the National Council on the Aging, an organization equipped to produce such standards and to check them on a national basis before issuing them to the research teams. When final designs for the component parts are agreed upon by all concerned, the building organizations could then seek to have these parts produced by various manufacturers or, they could develop their own production techniques for delivering them.

"It is my hope that the demand for housing for older people will produce the first really exciting *new* housing construction concepts to be developed up to this time; and it is true that this housing, if conceived in terms of new aesthetics and an environment of hope to live in—instead of despair to die in—could lead the way to better housing for all."

Arts and architecture

The problem of integrating the arts with architecture is not a new one, but it is still far from solution for all that. At a recent dedication of the new Manhattan City and Municipal Courts Building, the architect, William Lescaze, FAIA, had this to say on the subject:

"As a result of my experience with this particular building and also as a member of the National Council on the Arts and Government, I would like to offer two specific recommendations to the public authorities and these apply to private builders as well. The first is that for the guidance of the authorities, the architect and the taxpayer there should be an agreement right from the start of the amount of money allocated for art work in ratio to the total cost of construction of the building. It's currently being done in other countries.

"My second recommendation is that the architect be recognized as the *head* of the team. By this I mean that just as the architect selects his structural engineer and his mechanical engineer and submits his selections for approval to his client, he likewise should be charged with the responsibility of selecting his sculptor and his painter. Thus, and *thus only*, can a work of art be created which will be harmonious, where sculpture and painting will belong together and be really integral parts of architecture. Alas, I didn't find this achieved even in the Unesco building in Paris.

"What I am pleading for is not a new subsidy. It is simply a plea that the relationships between architect, sculptor and painter be acknowledged and provided for by our building agencies or private builders so that architects, sculptors and painters may work again together, dream again together, and, thereby make that wonderful and simultaneous creation happen again—as it should, and as it did happen in the Renaissance. I can assure you that we architects, sculptors and painters are indeed ready for a modern Renaissance. . . ."

On bid shopping

What price bid shopping? Following are excerpts of a talk by Daniel Schwartzman, FAIA, to the National Assn. of Architectural Metal Manufacturers (NAAMM) entitled "Architects' Attitude to Bid Shopping:"

"In order to arrive logically at a discussion of Bid Shopping, let us examine for a few moments the background of the usual building project from its inception.

"*1*—A building project is born out of its economic feasibility. This is true whether private capital or public funds are involved. This feasibility is based upon the potential income or the operating funds available to the project (as the case may be), the cost of land, land development and utility connections, building construction, furnishings and equipment, maintenance and applicable taxes. Sometimes the Architect is engaged to provide a special consultation service on the economic feasibility of the project. But even when the feasibility is determined without his assistance, the background of cost control is a factor for him from the inception of the project.

"*2*—Since the Architect's primary aim is a building of the highest possible architectural merit within the limitations of the site and the budget, he must start by requesting a fee sufficient to cover his own man-hours of professional service, as well as that of his staff and his consultants required by the project, in the client's interest. It is consistent, therefore, that the Architect take a similar attitude toward adequate compensation for the building contractors whose work he must also direct, in the best interest of the client.

"*3*—Designs must be made and plans and specifications necessary to carry them out must be prepared. This is the point at which the Architect requires [the manufacturer's] fullest cooperation. The type of cooperation that will, in itself, be the latter's best defense against indiscriminate Bid Shopping. When the Architect selects a product, he is in a sense designing with (1) appearance (2) durability and (3) cost, the three factors he must consider in that order. If there are several products that he can be assured are of near equal characteristics, his task is relatively simple because he can get the design results he seeks and still retain the assurances of proper value that are inherent in the competitive bidding system. We all recognize that it is not a perfect system but there is a prevailing American attitude that there is a moral aspect to it which we cannot ignore, and a legal aspect as well, as the latest publicized court cases seem to indicate.

"When there is only one product known to him that will fill the full requirements, then the Architect has no choice but to use the 'Or Equal' basis in order to fulfill his obligations to the client. It is reasonable to expect, however, that the general contractors all bid on the same product specified, and indicate as an alternate in their proposal on which of the 'Or Equal' products their bid is based, with the savings to the owner, if any, clearly stated for consideration. This, too, is not perfect and is not permissable on certain public work; but it could be helpful to the contractor, the sub-contractors, the owner as well as the Architect. I refer to the situation in which the general contractor notifies the Architect after the fact (usually when there is not sufficient time to do the proper research) that the 'Or Equal' product he proposes was originally reflected in his bid and to have it disallowed would be a heavy financial hardship on him. This is an unfair tactic, which may or may not have started with questionable Bid Shopping, and puts an intolerable burden on the Architect. The burden of proof that the product is 'Equal' is morally and legally on the supplier and contractor, and the proper time to establish the facts backed up with Testing Laboratory Reports and convincing references is before, not after, the contract is signed. The American Institute of Architects has made a great step in that direction in publishing its *Building Products Register*.

"This also means that intelligent, technically competent literature with the fullest possible cost, durability and installation information should be made available to the Architect during the design selection period. Fortunes are being wasted on senseless glossy, pretty picture-type mailings to the Architect which are of no value to him. This is especially true of cost information. It is not unreasonable to expect a product manufacturer to do the research required to determine on a rule of thumb basis how much his product will cost in place in the building. The feeling that cost information is sacred to the protection of the general contractor's interest is probably the open sesame to Bid Shopping and questionable substitutions."

DOCUMENTS

The documents listed below are available through the associations and agencies cited. All requests should be directed accordingly.

American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

Tentative Specification for Structural Steel, *A 36-60 T. $.50 (minimum order $1.00).*
Covers specifications for new structural steel A 36, which now joins A 7 and A373 as a stock item for steel mills and warehouses. Design stresses for A 36 have been established and published by the American Institute of Steel Construction. The new A 36 has a guaranteed minimum yield of 36,000 psi, and requires a tensile strength of 60,000 to 80,000 psi. The maximum carbon content is specified as 0.28 per cent ladle, 0.32 per cent check analysis. Additional requirements for manganese content are imposed for plates or bars over ¾" in thickness, and for plates over 1½" in thickness a silicon content is also specified.

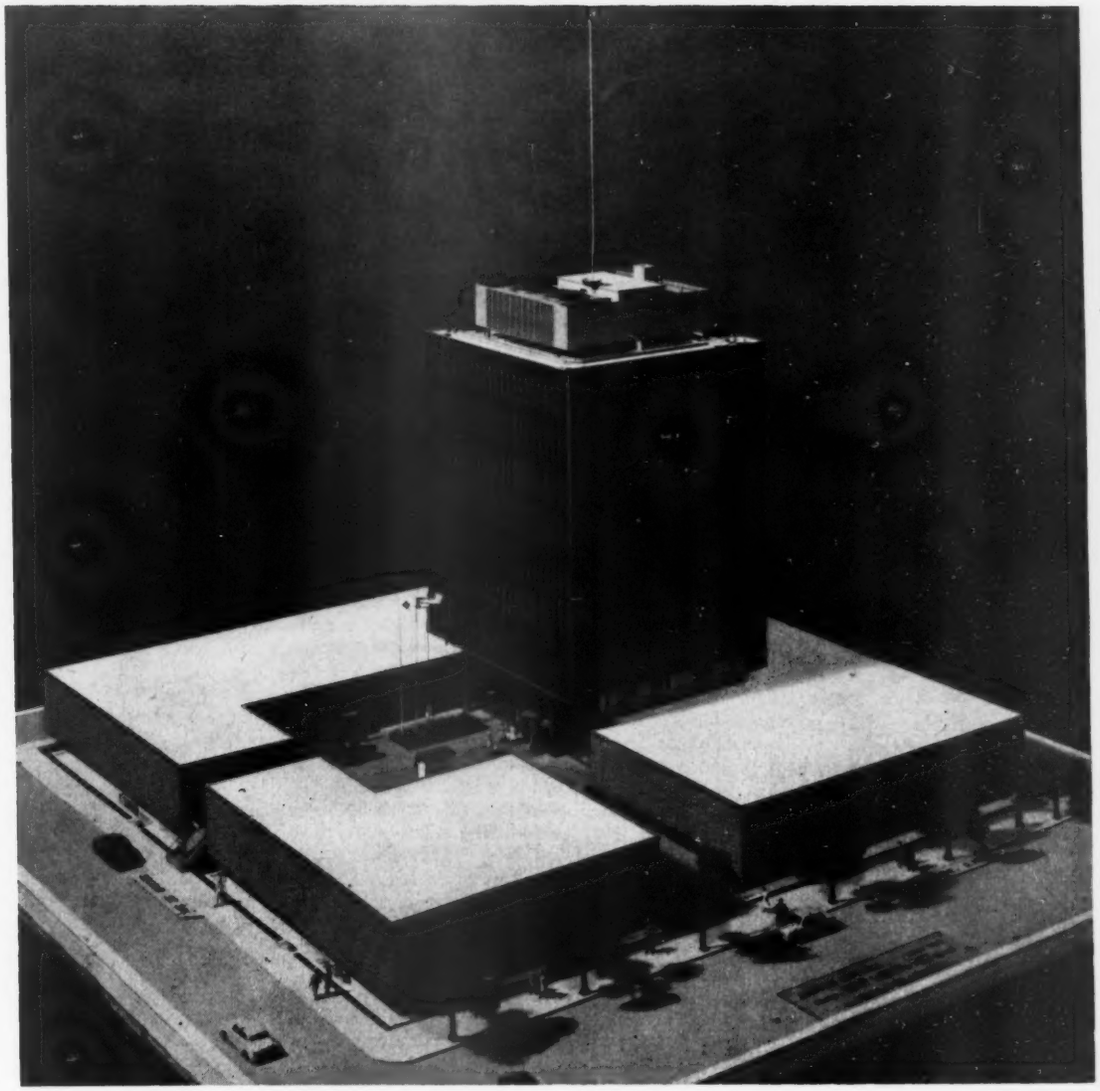
Compilation of ASTM Standards on Copper and Copper Alloys, *B-5. 1961. 746 pp. $9.25.*
In addition to standards for cast and wrought copper and copper alloys, this book contains some material on non-ferrous materials for electrical conductors, certain selected specifications on non-ferrous metals and alloys for primary forms of copper, zinc, lead, and nickel used in copper-alloy products.

1960 Supplement to 1958 Book of ASTM Standards. *1961. Ten parts; $4.00 per part; $40.00 per set.* **Part 1. Ferrous Metals Specifications.** *444 pp.* **Part 2. Non-Ferrous Metals Specifications and Electronic Materials.** *348 pp.* **Part 3. Methods of Testing Metals (Except Chemical Analysis).** *180 pp.* **Part 4. Cement, Concrete, Mortars, Road Materials, Waterproofing, Soils.** *240 pp.* **Part 5. Masonry Products, Ceramics, Thermal Insulation, Acoustical Materials, Sandwich and Building Constructions, Fire Tests.** *238 pp.* **Part 6. Wood, Paper, Shipping Containers, Adhesives, Cellulose, Leather, Casein.** *212 pp.* **Part 7. Petroleum Products, Lubricants, Tank Measurements, Engine Tests.** *320 pp.* **Part 8. Paint, Naval Stores, Coal and Coke, Aromatic Hydrocarbons, Gaseous Fuels, Engine Antifreezes.** *210 pp.*

(Continued on page 65)

THE ANATOMY OF A NEW PROJECT **PREVIEW:31**

CANTON CITY HALL	PROJECT
CITY OF CANTON, OHIO	CLIENT
KELLY & GRUZEN	ARCHITECTS
COX & FORSYTHE	ASSOCIATED ARCHITECTS
WEINBERGER, FREEMAN, LEICHTMAN & QUINN	STRUCTURAL ENGINEERS
MUZZILLO & TIZIAN	MECHANICAL ENGINEER



VIEW OF PROJECT FROM NORTHWEST

Program requirements

The program for the new Canton City Hall called for the demolition of an existing City Hall and Public Safety building housed in a structure over 100 years old, located in the center of the city. On this site, comprising a 200′ by 200′ city block bounded on all sides by streets, a new City Hall Complex was to be erected to include:

—Offices for all municipal departments and officials.
—City Council Chambers and Conference Rooms.
—Four Municipal Court Rooms and related Judicial Chambers.
—Police Headquarters with a new City Jail Facility.
—Provisions for off-street parking for municipal officials and police vehicles.

Preliminary analysis

Planning began with a series of conferences between the architects and city officials in which basic requirements for the structure were outlined and a budgetary allowance was determined. The architects then prepared a comprehensive survey and analysis of all existing municipal functions and their administrative needs. This was based on a series of personal interviews with all department heads; key departmental personnel; the various municipal judges; and police officials.

Basic space requirements for the various departments were established; and relationships between the departments were carefully analyzed so that locations of space could be most effectively assigned. After considerable evaluation of this information, a firm set of

criteria or program for the structure was reached and architectural planning proceeded.

The architects decided to create a Town Square setting in which the City Hall Complex would serve as a focal point for the civic life of the community. This planning approach stemmed from the observation that Canton, a highly industrialized city with dispersed facilities, had been restricted in its opportunities for civic focus. Also noting that the city government had been hampered considerably by the inadequacies of the former City Hall structure, the architects endeavored to develop a flexible building to house adequately current and anticipated municipal requirements.

The architects in their planning also followed a basic recommendation by City Officials calling for maximum use of materials indigenous to the industry of the area, such as brick, steel, glass and tile.

General plan elements

The plan for the City Hall Complex utilizes the entire city block site for the building, as well as an open area. The City Hall consists of two base buildings surrounding an inner open court, above which rises a 116′ tower section. As an architectural solution, the plan reflects a concise separation and integration of the four major divisions of municipal government: Judicial, Legislative, Executive and Law Enforcement.

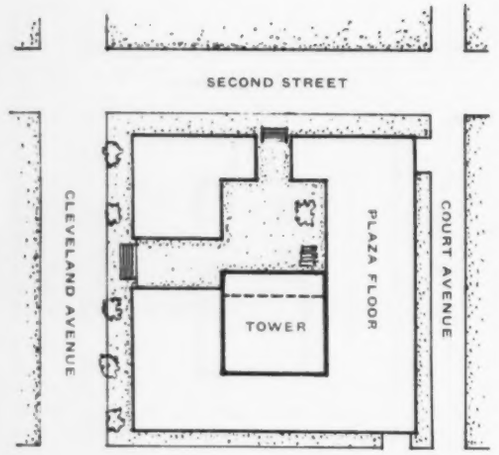
A Plaza Floor, enclosed by a brick patterned wall, is located along the entire perimeter of the site—leaving the center available for development of the open Memorial Court. The focal point of the project—the seven-story, stainless steel and glass enclosed office tower rises on columns over the Plaza Floor and overlooks the Memorial Court.

All facilities requiring public assembly and daily public contact such as the licensing and tax-paying area, Municipal Courts, Council Chambers, Police Department, etc., are located on the Plaza Floor and First Floor areas, most directly accessible from the street.

The Plaza Floor is reached by terraced steps up from the street level and through the Memorial Court. Paved with red brick, pleasantly landscaped and provided with benches, the Court will provide an attractive area for pedestrian traffic and relaxation, as well as a practical space for outdoor civic ceremonies. It will also serve as spectator overflow space, when needed, for ceremonies or meetings in the Council Chamber through the use of a folding aluminum door which will open the rear of the Chamber's seating area.

The offices for municipal officials and services are located in the Office Tower. The Office Tower was separated from the Courts and Police facilities so as to provide a direct means of access to each floor and department, and also for efficient coordination of the various municipal departments. Location of the Courts on the Plaza Floor will accommodate public traffic without interference with office areas.

In similar fashion, location of the Police Department and City Jail on the First Floor, 3′ below grade and basement, was established for maximum security control and to separate Police Department traffic from other activities of the building. Transfer of prisoners from police and jail areas to and from the courts is accomplished directly by means of a controlled detention corridor and elevator. At this level a restricted parking facility for public officials will accommodate 28 vehicles.



SITE PLAN

The Basement Floor contains a police parking facility for 50 vehicles, a pistol range, general storage rooms, police radio equipment and the boiler room.

Structural

The Plaza exterior wall is a cavity wall of 4″ brick, 2″ air and 6″ concrete block. The pattern in the brick wall was created by using standard brick, with recesses provided by a 2″ deep brick. The pattern was detailed on the architects' drawing to show a typical end module for corners, and a typical center module, for the mason's guidance.

The curtain wall of the Tower consists of stainless steel members on 3′-0″ centers with solar gray plate glass between them. The vertical steel structural mullions are attached at every floor to the steel frame and provision is made for both vertical and horizontal expansion and contraction.

A pan type (4″ slab—8″ pan) reinforced concrete construction was used for the lower two floors, the foundations being all reinforced, concrete spread footings. Concrete design stresses are 2,500 psi for footings and foundation walls, and 3,000 psi concrete for columns and upper level slabs.

Superstructure is steel beam and column construction, fireproofed with vermiculite plaster. Parts of two floors were designed for 250 lb. psf live load for IBM equipment.

Electrical

The building is served by 120-208 volt, 60 cycle three-phase, four-wire service through transformers under the sidewalk provided by Ohio Power Co. The electrical distribution system involves not only the normal power and light systems, but also extensive sound systems for the council chamber, court rooms and line-up room, as well as a security sound system in the jail and all police radio and communication systems. A major item among these is a 100′ micro wave antenna on the roof for police line of sight communication with State Police at Massilon, Ohio.

Lighting

Lighting was recessed on the police floor; surface mounted fluorescent fixtures were used elsewhere, maintaining a level of 75 footcandles. The tower is floodlighted by banks of lights mounted on the plaza roof.

HVAC

Direct heating is accomplished by forced hot water systems. Stairs, entries and first floor periphery are heated by finned pipe radiation, convectors, propeller type and cabinet type unit heaters, all supplemented by a ventilation and air-conditioning system. The Tower has the periphery heated by hot water fed high pressure induction units which are used for cooling in the summer.

For air-conditioning the chilled water is generated by a steam fed 275 ton absorption unit. The cooling tower is on the roof, the air handling units for the tower are in the mechanical mezzanine above the plaza roof while the air handling for the rest of the building is located near the power plant.

Area and cost

Total area: 150,000 sq. ft.

Total volume: 1,860,000 cu. ft.

Total construction cost (excluding land, movable furniture and equipment, and fees): $3,177,371 [Of this total, $1,093,751 went for HVAC, Plumbing and Electrical.]

DOCUMENTS

(Continued from page 62)

Part 9. Plastics, Electrical Insulation, Rubber, Carbon Black *494 pp.* **Part 10. Textiles, Soap, Water, Atmospheric Analysis, Wax Polishes.** *334 pp.*
These supplements give in their latest form standard specifications, tests, definitions, and recommended practices which are being issued for the first time or revised since their appearance in the *1958 Book of Standards.*

Manual on Industrial Water and Industrial Waste Water, *STP 148-E, Second Edition. 674 pp. $11.00.*
This edition represents a substantial expansion of the first edition. It has been designed to satisfy the growing need for dependable information about water and the problems its use entails. A comprehensive treatment of the subject of value to architects and consulting engineers involved in plant design and industrial operations involving the use of water.

Adhesion and Adhesives, *STP 271. 1961. 66 pp. $2.25.*
Deals essentially with metal-to-metal adhesives and their use in aircraft design.

Syska & Hennessy, Inc., 144 E. 39th St., New York 16, N. Y.

Corrosion, Scale, and Algae Effects on Mechanical Equipment. *1961. 4 pp. No charge.*

Consulting Engineers Council c/o Larry N. Spiller, Executive Director, 326 Reisch Building, Springfield, Ill.

The Practice of Consulting Engineering, *edited by Thomas R. Miles, CE. 1961. $10.00.*
This new practice manual, intended as a reference, provides information on the principles and performance of consulting engineers, or engineers in private practice.

The O'Brien Corp., 2001 W. Washington Ave., South Bend 21, Ind.

Modern Color Planning for Factories; Modern Color Planning for Hospitals; *and* **Modern Color Planning for Schools.** *1961. 16 pp. each. 65¢ each; $1.95 for set of three.*
Color schemes by Howard Ketcham, color consultant, are incorporated in these books which feature actual paint swatches and recommended color schemes.

(Continued on page 66)

DIGEST: 30

FINISHES FOR COPPER, BRONZE AND ALLIED METALS

by Henry E. Voegeli*

New metals and new finishes have become available for architecture in recent years. In fact, they are yet so new as not to have become assimilated in the subconscious instincts of the architect. It is not always easy for an architect to decide on color and finish; he might even wish that he could have a bright, colorful finish on a metal, such as bronze, if only it could be easily maintained—quite likely if such a bright metal with a permanently clear finish were available to him, he would still use it sparingly or would do something to subdue the effect.

In designing with metals, the architect should employ a different scale of color values. All architectural metals are by nature reflective. Moreover, all are more or less a plain silver gray, save three, strontium, gold and copper; these are the only metals with color. Strontium is never used in the solid state, gold in architecture is used in the form of gold leaf and for plating, whereas, copper is the master metal from which several important architectural metals with color are made.

Reflectivity is of serious concern to the architect in handling metals having a bright color and finish. They reflect the color of their surroundings, so that their appearance is different with every setting; as an example, it is impossible to photograph the true color of reflective metals, just as it is impossible to photograph the color of a mirror. This characteristic often works to the advantage of white metals as they are able to pick up warmth from the surroundings.

A disadvantage with metals of a light color and bright finish is that buckles and waviness are magnified and may have an adverse effect on the appearance of the work. It is therefore prudent for the architect to select the color and finish of metals wisely and with care.

The natural color range is from the bright metals, gold, copper, brass, bronze and the white metals, including nickel silver, through the brown statuary coloring, to the weathered antique effect of the patina which forms on copper and its alloys. The surface finishes range from a smooth polished and buffed surface to an embossed or textured surface. This includes a honed finish, satin finish, scratch brush finish, etching, sand blasting, crimping and pattern rolling.

Function and finish

The proper kind of surface finish depends also on the art and the architecture. Flat surfaces such as panels, spandrels and grid type curtain walls should have a matte or satin finish, a polished surface would be totally out of place because of the wavy reflections of plain surfaces. Rounded surfaces may need nothing more than a uniform mill finish. A high polish is suitable for rounded objects of art and sculpture, life size and smaller, if the work is to remain bright or to have a statuary finish. There is nothing more elegant than a garden statue of bronze or the spout of a fountain usually in the form of a cherub or dolphin, which has been rubbed and fondled with the bare hands of people. The coloring that results is superfine, and the smoother and rounder the surface, the better it will look. Flat cast metal surfaces can be given a hammered, pebbled or sand blast effect.

To obtain a bright finish on architectural metals it is necessary to remove the tarnish, to produce a good surface, to be meticulously clean about removing all traces of soil, oil and grease, then to apply a colorless protective coating. The preparing may be done in the usual manner with sanding belts for sheets and extensions, with a swing lathe for irregular shapes, and by hand with suitable abrasives on intricate parts.

Sample specifications

Polished bronze (bright): The metal is to be chased and rough finished or "cut down" with 80 and 180 grit before polishing. This to be followed by buffing with a 12" cotton or muslin wheel at 1450 RPM or 4600 surface feet. Use recommended greaseless buffing compound, Lea or equal. Scrub with ground pumice and water, and rinse with clean cold water.

Satin finish (bright): The metal as received from the mill is to be "cut down" with 80 grit and finished with a surface texture such as that produced by a new 240 grit sanding belt. This is slightly deeper than the U.S. No. 10 finish, Federal Specification for hardware FF-H-10 6a. Scrub with ground pumice and water and rinse with clean cold water. Wipe the metal with a cloth moistened with butyl cellosolve, and rub it dry. Apply acrylic colorless protective coatings, such as du Pont "Methacrylate 1234" or approved equal in accordance with manufacturer's directions, using the spray method.

Uniform finish (bright): Remove all tool and die marks then clean exposed surfaces with oxalic acid (99 per cent powder). Use 2 tablespoonfuls per quart of hot water, and keep the water hot (150° F plus). Follow by rubbing with ground pumice or sea sand with cold water, using a bristle brush or burlap, and rinse with clean water. Rub on an even coating of petrolatum, or spray on a coating of lacquer if preferred.

Statuary finish (brown): Prepare with satin finish as specified and rub down with pumice and water, then a cold water rinse, followed with the oxidizing solution while the work is wet. The solution shall consist of sulfide of ammonia (H-280 liquid form) and water, 1 pint sulfide of ammonia to 2 quarts cold water. Apply the chemical to the metal with a scrub brush dipped into the solution and then into powdered pumice, stroking vigorously to and fro, lengthwise of the work. The process continues with a wash of sharp water (½ pint nitric acid to 2 quarts water) or copper sulfate as an alternate. Flow on a wash of clean cold water and rub down the surface while wet with 00 steel wool to obtain an even color. Then dry with a soft cloth.

Uniform finish (brown): Prepare the metal as for a bright uniform finish, cleaning away all traces of oxalic acid with pumice and water. The coloring shall be done with a solution of sulfide of ammonia and water, 1 pint sulfide of ammonia (H-280 liquid) to 2 quarts of cold water. Wet the metal, then scrub with a brush or burlap dipped in chemical and pumice or sea sand. Clean with water, smooth out the coloring with fine steel wool, then dry and rub on a coating of lemon oil.

Statuary bronze

To produce a statuary bronze coloring there is a choice of chemicals. The sulfide of ammonia H-280 mentioned here is available from the General Chemical Co., New York, and elsewhere. Then there is "McKeon's Liquid Sulfur" which is easily available. Good results can be obtained by using 1 ounce McKeon's Liquid Sulfur per gallon of water. Another, but more elaborate formula is compounded from potassium sulfuret (sulfurized-potash in cakes or powder) ammonia and water in the following proportions: 1 pint

(Continued on page 66)

**Mr. Voegeli is a Development Engineer with Anaconda American Brass Company.*

dissolved sulfurized potash (saturated—about 1 pound per gallon of water) and 1½ pints ammonia in 40 gallons of water. Solution temperature of 100° F to 120° F is desirable.

An acceptable statutary finish on copper, brass or bronze may be any one of several shades or colors. A single treatment as specified will produce a dark reddish brown on pure copper, a second treatment will produce ebony. A single treatment on red brass brings forth a beautiful medium statuary (reddish bronze) coloring. One application on architectural bronze and Muntz metal* will produce a light statuary. The colors can be deepened by repeating the coloring process or they can be lightened or relieved by gentle rubbing with fine steel wool while wet. As an alternate, for obtaining a deep statuary on architectural bronze and Muntz metal, the surface can be dezincified and given a copper blush with a wash of 5 per cent cupric chloride and 5 per cent hydrochloric acid, or the metals can be given a 1 to 2 mil thickness copper plating and then colored.

The colors produced by these means are predominantly brown. The architectural beauty in the copper family seems to lie in the clear bright newness of the metals and in the dark effects. These complement glass and other surrounding materials. Somewhat to the contrary, statuary of cast brass or bronze looks very well in the yellow greenish brassy hue, and no one will gainsay that the bronze statue of George Washington at Valley Forge finished in shining ebony is the finest thing of its kind. To get the brassy color on bronze statuary there is probably no better way than to place the casting in a box of oak sawdust well dampened with urine allowing it to remain for several days.

Patina

Architecturally, pure copper is an outdoor metal, it tarnishes quickly to a russet brown, then to a copper brown and finally to the blue green patina. Near the sea the transition takes place within a few years, inland probably twice as long. To obtain the copper brown color immediately is very simple. The copper is washed with soap and hot water, then rinsed and colored while wet with one of the sulfur compounds mentioned above, generally known as "liver of sulfur." Rubbing the surface to remove the nap and coating the copper with a thin film of boiled linseed oil will produce a luster that will last a long time, or indefinitely, if rubbed with oil once in 3 to 5 years.

An artificial blue green patina can be produced with chemicals on a copper roof so as to have color almost over night. For vertical surfaces such as mullions, spandrels and fascias the coloring should be done in a horizontal position and out of doors to get the benefit of dampness in the night air. When, after repeated spray applications of chemical an approved color is obtained, the material should be sprayed with a fixative to permit handling.

There are at least 3 kinds of chemicals that can be recommended, the colors they produce are beautiful, though not entirely identical with the color of the natural patina. In time, the natural patina will grow up through the artificial patina. The 3 solutions most commonly used are; the *CABRA formula* offered by the Copper and Brass Research Assn., the *Frank Lloyd Wright formula* and the *Graham formula*. The CABRA chemicals, in a weak ammonium sulfate solution, produce a light blue-green coloring, the Wright formula of saturated ammonium chloride produces a vivid and chromatic blue-green color, and the Graham mixture which is quite acid brings forth a color that is probably nearest to that of the natural patina. These formulas are given below. In all cases the chemicals should be sprayed onto the work, not brushed or swabbed.

CABRA
(Ammonium Sulfate)
6 lbs. Ammonium Sulfate
3 ozs. Copper Sulfate
1½ Fluid Ounces Concentrated Ammonia
6½ Gals. Water
(Apply on Clean Bright Copper)

FRANK LLOYD WRIGHT
(Ammonium Chloride)
Sal Ammoniac and Water—Saturated
(Apply on Clean Bright Copper)

GRAHAM
(Hydrochloric)
3 lbs. Cupric Acetate Tech. Crys.
1 lb. Cupric Carbonate Reg. Powder
2 lbs. Ammonium Chloride Gran. Powder
1 lb. Arsenic Trioxide
Mix above in 2 gallons of Water, then add SLOWLY,
1 gallon Muriatic Acid to make 3 gallons.
(This formula will color weathered copper.)

Cost

These are the colors and finishes in copper and its alloys, plus yellow brass and nickel silver, that are available to the architect and owner. A general idea of the original cost of those finishes and colors and the cost of maintenance is helpful to the architect in making a choice.

Patinated copper: A copper roof which is allowed to acquire the natural green patina, gets color and maintenance gratis. Such a roof colored artificially would cost about 2 cents per sq. ft. for chemicals and 5 to 10 cents per sq. ft. for labor. Precoloring of copper with an artificial patina would cost about 2 cents for chemicals and 15 cents per sq. ft. for labor. There should be no maintenance expense.

Copper brown color maintained: Cleaning and rubbing the copper with liver of sulfur and pumice, then rinsing and oiling would cost about 15 cents per sq. ft. at first cost and 10 cents per sq. ft. every three years.

Washing the copper with soap and water then letting it turn brown and oiling every three years. Original cost and maintenance 10 cents per sq. ft. every three years, plus scaffolding.

Statuary finish over satin finish: A nice satin finish may cost from 30 to 40 cents per sq. ft. Coloring with liver of sulfur and applying lemon oil would cost an additional 15 cents. Cleaning the metal and rubbing on lemon oil once a year would cost about 75 cents per sq. ft. in maintenance.

Uniform finish (statuary): A hand rubbed uniform finish with statuary bronze coloring and hairline scratch marks resembling a satin finish may cost about 20 to 25 cents per sq. ft. The cost of maintenance would be minimum.

Satin finish (bright): A first class job of satin finish with a transparent protective coating will cost 40 to 50 cents per sq. ft. The cost of maintenance in replacing lacquer once a year would run from $1.50 to $2.50 per sq. ft.

Uniform finish (bright): A hand rubbed uniform finish removing all tool and die marks and imparting a semblance of satin finish by cleaning the metal and, rubbing it lengthwise with ground pumice or sea sand will cost about 25 cents per sq. ft. and an additional 5 cents for rubbing with oil. Maintenance may cost around 75 cents per sq. ft.

These figures are based upon the actual costs of maintaining the bronze front on a prominent New York building and they demonstrate the economies made possible by careful selection of colors and finishes. However, they do not necessarily mean that those colors and finishes which require maintenance should be avoided. To a reasonable degree the opposite is true. There is wisdom in the words of Alden Dow who said—"Anything fine, *must*, above all else—reflect human care."

**Muntz metal is an alloy composed as follows:—60 per cent copper, 0.35 per cent lead, 0.25 percent tin, 0.15 per cent iron, 0.1 per cent other elements, balance zinc.*

DOCUMENTS

(Continued from page 65)

Building Research Advisory Board, National Academy of Science, National Research Council, 2101 Constitution Ave., Washington 25, D. C.

Evaluation of Components for Underground Heat Distribution Systems, *Technical Report No. 39, NAS Publication No. 828. 1961. $1.50.*
Describes laboratory tests of nonmetallic casings developed to save the costly testing of the entire conduit unit. Report includes testing procedures for waterproofing materials, insulations and casing materials.

Criteria for the Acceptance of Cast Iron Soil Pipe, *Technical Report No. 40, NAS Publication No. 836. 1961. $2.00.*
Based on field study of conditions of use which was mainly an extensive investigation and demonstration of cutting and fitting the pipe. Study attempted to determine physical characteristics required for satisfactory in-place performance. The report presents engineering data and general design criteria to be followed in selecting cast iron soil pipe.

The Associated General Contractors of America, Inc., 20th and E Sts., N. W., Washington 6, D. C.

Suggested Guide for Field Cost Accounting for Building Contractors. *1961. $2.50.*
Booklet provides a set of forms offered as a suggested guide to improve or initiate a cost accounting system for contractors. It is presented in three parts: 1. preparation of the project estimate using a standard system; 2. job labor and material cost distribution covering the recording and distribution of field labor and material to a standard cost accounting system; and 3. the preparation of cost reports in a manner that will give a complete and realistic forecast of the job outcome.

Burgess-Manning Co., Architectural Products Div., Libertyville, Ill.

Engineering Manual on Radiant Heating, Cooling and Acoustic Ceiling. *1961. 200 pp. $25.00.*
Bound in loose-leaf binder, the manual contains data sheets, drawings and specifications on various aspects of radiant heating and cooling with acoustical control. Additional material will be released at regular intervals.

NAMES

R. BUCKMINSTER FULLER, progenitor of the geodesic dome, is undoubtedly the first space designer of the space age, the complete breaker-off from tradition and from that mainstay of architecture, the straight line; he is the ultimate champion of lightness, discontinuity and the geometry of spheres; an analyst of things past and an oracle of things to come.

Yet Bucky—as many of us call him—is not an architect, nor a historian, nor an engineer, nor yet a mathematician, in the sense that we distinguish these professions. His early education set aside obeisance to a single academic discipline which, had Bucky completed either Harvard or Annapolis, would have made him R. B. Fuller, architect, or R. B. Fuller, mathematician, or perhaps R. B. Fuller USN. Professional blinkers from time to time afflict most of us. Not so Bucky, whose mind thus became free to roam above and between the disciplines, and to see the world not as a collection of tusks, trunks and flappy ears, but as the complete elephant.

Bucky was born in Milton, Mass. in 1895, and after studying at Milton Academy he entered Harvard in 1913, left it in 1915 and then spent 1917 at the United States Naval Academy. He was married in 1917 to the former Anne Hewlett. Between 1914, when he worked for a while as an apprentice machine fitter in Boston, and 1961, when he is scheduled for the Charles Eliot Norton professorship at Harvard, Bucky has been engaged in a truly bewildering assortment of occupations: naval officer; assistant export manager for Armour and Company; national account sales manager for Kelly-Springfield Truck Company; president of Stockade Building System; founder, director and chief engineer of Dymaxion Corporation; assistant to the director of research and development of Phelps-Dodge Corporation; technical consultant to *Fortune* magazine; wartime official on the Board of Economic Warfare and the Foreign Economic Administration; president of Synergetics, Inc.; and lecturer at *114* colleges throughout this country. He is now chairman of the board of trustees of Fuller Research Foundation, president of Geodesics, Inc., president of Plydomes, Inc., and Professor of Generalized Design Science Exploration at Southern Illinois University. He is also author of *Nine Chains to the Moon* (1938) and the subject of *The Dymaxion World of Buckminster Fuller* (1960) by R. W. Marks.

Once, in a rather jocose mood, Bucky coined the phrase "roam home to your dome," and his domes are certainly spread far and wide: at the Ford Rotunda in Dearborn, as Marine Corps advance base shelters, as Distant Early Warning (DEW) Radomes in Northern Canada, as Navy geodesic storage domes in Antarctica, as Commerce Department trade fair pavilions, and as freight car repair shop shelters. There is also the Golden Dome in Moscow (see photo above), the open dome for the American Society of Metals headquarters near Cleveland, and the award winning *Climatron* at the St. Louis Botanical Gardens. At least one of Bucky's former students is known to have built a geodesic dome, as a home for his parents in the New Hampshire hills.

Of the Moscow Dome Bucky has this to say: "Khrushchev visited the dome during construction and said that it was a 'good invention,' adding that he would like to have Buckminster Fuller visit Russia and lecture to the engineers. After the United States exposition closed the Russians purchased this dome and it is now a permanent structure in Moscow. They use it for a winter sports palace, and last summer it was used for the Czechoslovak and Japanese national exhibits. The Russians are reported to be developing many more geodesic domes ranging from the 750′ diameter geodesic to cover the Magneto Stadium down to air-droppable arctic shelters. They have made no arrangements with me, but did discuss the engineering theories with me when I visited Moscow. The Russian government purchased 50 copies of Robert Marks' book *The Dymaxion World of Buckminster Fuller* soon after its publication, a year ago."

Hundreds—not least among them students of architecture—have come under the Bucky Influence. The Influence is benign, robust, enthusiastic, infectious. It is by nature an invigorating Influence, one which portrays independent thinking, novel conclusions even from well-worn evidence, and an over-all awareness that there is more between heaven and earth than is known in thy philosophy, Horatio. Given half a chance, Bucky will talk for hours, throwing out idea after idea with reckless abandon and often without any tangible connecting thread. But after it is all over and Bucky is gone, it is possible to digest this seemingly indigestible outpouring, and one realizes that here, indeed, is that rare personality which has defied our specialized, compartmentalized era with a wide-ranging competence.

BOOKS

The City in History *by Lewis Mumford. New York: Harcourt, Brace & World, Inc., 1961. 657 pp., 156 illus. $11.50.*

*by Charles K. Agle, AIA, AIP**

". . . Rome remains a significant lesson of what to avoid . . .: the arena, the tall tenement, the mass contests and exhibitions, the football matches, the international beauty contests, the strip tease made ubiquitous by advertisement, the constant titillation of the senses by sex, liquor, and violence . . . and above all, the masses' collective concentration on glib ephemeralities of all kinds, performed with supreme technical audacity. These are symptoms of the end: magnifications of demoralized power, minifications of life. When these signs multiply, Necropolis is near, though not a stone has yet crumbled. For the barbarian has already captured the city from within. Come, hangman! Come, vulture!"

"Another century of such 'progress' may work irreparable damage upon the human race. . . . our present methods which smooth out differences and reduce potentialities, to create a state of mindless unconsciousness, in which most of man's characteristic activities would be performed only by machines. Even if the infamous nuclear and bacteriological weapons that already threaten wholesale extermination remain unused, historic man, he who lived in cultural time and space, who remembers and anticipates and makes choices, would disappear."

"The chief function of the city is to convert power into form, energy into culture, dead matter into living symbols of art, biological reproduction into social creativity. The positive functions of the city cannot be performed without creating new institutional arrangements, capable of coping with the vast energies modern man now commands. . . ."

"Before modern man can gain control over the forces that now threaten his very existence, he must resume possession of himself. This sets the chief mission for the city of the future: that of creating a visible regional and civic structure, designed to make man at home with his deeper self and his larger world, attached to images of human nurture and love."

In his most recent literary haystack Lewis Mumford has buried many very sharp needles.

The City in History complements and caps his two earlier studies in the same vein: *Technics and Civilization* and *The Culture of Cities.* Its structure is admirable in its comprehensive simplicity. Starting with the paleolithic era, he has traced the archeologic remains of the cities and either surmised or documented the concurrent political, economic, social, and philosophic characteristics of each epoch. Accompanying the text are four extensive sets of representative photographs with a particular critique of the factors illustrated by each. These series by themselves are worth the price of admission and are the easiest component of the book to absorb and digest.

Since Mumford is by trade a critic rather than merely an observer and reporter, his discussion of the city at each stage of its evolution is socially subjective rather than a recitation of known facts. However, the tome is manifestly a labor of love based on exhausting background study. Mumford has long since established his integrity and one need be challenged only by the surmises.

Mumford's well argued thesis, based on history, is that our social happiness and individual self-respect has been progressively on the skids throughout the ages as the numbers of population and the complexity of our material society increases. As an antidote for this being drowned in numbers he pleads for the reconstruction of our society in smaller groups, such as the New Towns of England and Sweden. As any of us look honestly at the anonymous enormity of our metropolitan messes, it is difficult to escape his concern for humanity or the conclusion he draws.

"The City in History" is a "must" for serious students and practitioners. His message *should* be widely read and heeded by all on the popular front to be effective. Alas, I doubt if this will happen since Mumford failed to hire Hemingway as a rewrite man.

Le Corbusier *talks with students, translated by Pierre Chase. New York: Orion Press, 1961. 88 pp. $3.50.*

It is harder to be brief than to be long-winded, and Le Corbusier has once again shown us his mastery of the pungent phrase and the expressive *mot.* The text itself, of course, is not new, even though this is its first version in English. It is actually a translation of what Le

(Continued on page 71)

* *Mr. Agle, planner and architect, is on the faculty at Princeton University.*

advance designed for the sixties

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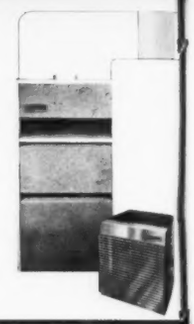

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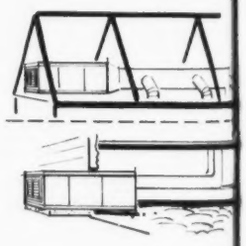

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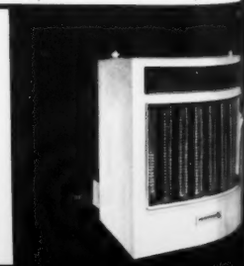

BOOKS

(Continued from page 68)

Corbusier called a "rather well-designed little book" written in response to a request by some Beaux Arts students as far back as 1942. Le Corbusier had been called upon to lead an atelier at the Beaux Arts, but he refused due to pressures of outside work. Besides he has always, so he says, believed in students choosing their teacher rather than *vice versa*, and the Beaux Arts system would have precluded this. In its place, Le Corbusier wrote this book.

It must be said in honesty that the author's exposition does not furnish us anything particularly new by way of Corbu philosophy. His thoughts on man's relation to nature and climate; on scale; on movement through architecture; on the Beaux Arts; on circulation; on color; on technology; and on town planning have appeared, here and there, before 1942 and since, in various translations of his works.

But what is engaging about the little book is the compassion and sympathy of his attitude towards the young student of architecture. It appears at every step: a feeling of encouragement and concern for them, without a trace of condescension. Evident throughout is Le Corbusier's deep desire that these students, as they mature, remake this world and leave it in a better shape than they found it.

It is hard to turn the flavor of Le Corbusier's style into another language, as this reviewer discovered when he found himself part of a little group which tried to transpose into effective English Le Corbusier's remarks at the recent AIA convention in Philadelphia. Pierre Chase has given us a translation which, even though it is in excellent everyday English, still preserves the nature of the French, leaving the reader with the thought that this, after all, was a French original. That is hard to do, and it was well done. The book was designed by Wladislaw Finne in a simple, direct manner, with a large readable type face. A decorative pattern, gracing the jacket and separating the chapters, is presumably representative of concrete units; its scale however seems somewhat out of proportion to the small page size. But this is quibbling, perhaps. We can be grateful for this forthright addition to Le Corbusier lore. *SAK*

Penn's Great Town, *250 years of Philadelphia Architecture by George B. Tatum. Philadelphia: University of Pennsylvania Press, 1961. 352 pp., 145 illus. $12.50.*

Published to coincide with the 1961 AIA Annual convention in Philadelphia, *Penn's Great Town* is the first general survey of Philadelphia architecture to appear. It deals not only with architecture, but also with planning, starting with Thomas Holme's plan of 1682, and with civil engineering projects. Included is a very unusual bridge across the Schuylkill River known as the Colossus, designed by architect Robert Mills and engineer Louis Wernwag in 1809. Mr. Tatum, associate professor of history of art at the University of Pennsylvania, has produced something that is more than a mere picture book of past and present Philadelphia architecture. It is also a scholarly historical work, thoroughly documented in all its parts. The text is divided along historical lines, beginning with *The Early Years*, and progressing through *The Golden Years* (1725-1775), *The Federal Period* and the various brands of eclecticism to *Modern Philadelphia* and 1960. Any reader who reaches the end looking for more can select from a detailed four page general bibliography. The illustrative material is particularly valuable because it has assembled in one book prints of many historical buildings now destroyed. These and others were selected from more than 25,000 found in various collections in Philadelphia, New York and Washington.

Foundation Failures *by C. Szechy. London, Eng.: Concrete Publications, Ltd.: 1961. 146 pp., 122 figures. $5.00.* Translated from the Hungarian, Dr. Szechy's lectures on foundation failures is an unusual book in its frank open description of how, why and when structures are abandoned or require extensive and expensive reconstruction because of foundation deficiencies. Of the 72 examples described some two-thirds are of Hungarian structures, and all are very well documented with sub-soil profiles, settlement readings over extended periods and careful analysis of the cause of failure. Most of the foreign (to the author) examples are taken from the literature and here the author is not as accurate. The material taken from one of the writer's papers, Example 22.23, is considerably distorted from the facts as published in the U.S.A. reference. However, the lesson is well illustrated, even if the state of conditions as described did not occur.

Dr. Szechy catalogs foundation failures under the general causes of:

I. Inadequate investigation of the

BOOKS

(Continued from page 71)

site (eight examples to describe six types of trouble resulting).

II. Unsuitable types of structures and foundations (25 examples describe fourteen different design errors).

III. Defects and failures due to defective execution (22 examples describe 19 different types of omission).

IV. Failures due to external influences (17 examples of 16 forms of natural and artificial modification of the sub-soil after a successful construction operation).

The American reader will disagree with the classification in Part III, unless he realizes that in European construction technique, the contractor's execution includes many phases which we call design and which we therefore could include in Part II.

Some of the types of failures described could be further enriched by information in the technical literature of the U.S.A., Great Britain and Canada, from which the author only cited five, three and two respectively. On the other hand, most of the failures described have never previously been available in the English literature.

The text is illustrated by 102 diagrams and 20 figures, very clearly presented and giving valuable information in addition to the descriptions.

The writer clearly states the value to be obtained by a complete description of the nature and cause of all structural failure and pleads that other engineers will follow his example in presenting such data for the benefit of the entire profession. With this, the writer is in full accord and personally thanks Dr. Szechy for the contribution in this work.

Jacob Feld, Ph.D.
Consulting Engineer, New York

Renaissance Europe: Buildings of Europe, *edited by Harold Busch and Bernd Lohse. New York: The MacMillan Co., 1961. 180 pp., illus. $10.00.*

films

Letter to Youngstown *available through The Youngstown Sheet and Tube Co., Youngstown 1, Ohio. 16 mm., sound and color, 35 minutes running time.*
Depicts steps in manufacture of iron and steel from the ore mines to slabs from the blooming mill. Also describes manufacturer's research activities and products.

EDITORIAL

A LINK IN TIME. The reader will surely be indulgent if we return to our favorite quotation, culled, as we said last April, from a news release on laminated wallboard. "Ever since a caveman," the release went, "piled stones one atop another to provide a shelter of sorts, building methods have continually improved." We analysed this concept at some length at the time, and after concluding that the fast altering nature of our technology has imposed upon the architect the double challenge of keeping abreast of current developments and that of re-assessing his own position in relation to them, we promised to examine this matter further, lens in hand.

We see room today for a new specialist, a new authority, who would create a link between the world of architecture and that of the manufacturer of building parts. There is, indeed, the opportunity here for a totally new career.

We have in mind the architectural research and design consultant. In this field, which has next to no precedent, there is need for a man who would be familiar 1. with the production procedures of industry, 2. with its marketing procedures and 3. with the creative process of architectural design. He would be 4. a potential designer of components in his own right through a close knowledge of architectural requirements, 5. a man familiar with material testing procedures and 6. one who knows about labor union organization, site operations and the likely impact, on both these, of new techniques.

It is suggested that a separate new curriculum be set up in the schools of architecture to train such a man. If we need specialists, we must surely encourage them, the way Columbia University School of Architecture resolved to do, not long ago, by establishing the degree of Master of Science in Hospital Design.

The education of such a practitioner at the undergraduate level would follow a general liberal arts and basic science curriculum, including a. the usual architectural subjects and b. courses in the various aspects of industrial economics. At the graduate level, the two fields would be gone into more intensively, with a series of courses in architectural design, product design, techniques of manufacture and the study of architectural practice.

This would lead after two years to a Master of Science degree in Building Technology. With this degree in his pocket, our man would spend the next two years in an architect's office to become acquainted by personal experience with the actual growth of a building from plans to completion. Finally, a year should be spent in the research and development section of a manufacturer of building products. At the end of this period of training and "apprenticeship," he would then be prepared to hang out his shingle.

The architectural research and design consultant—and we do know of one or two today—can provide a unique service. The manufacturers could call upon him for advice on projects of whose acceptance they are not sure. They could commission him for special projects involving design, not only of components but of complete systems. The architect, for his part, could engage him to analyse, from the point of view of physical and economic workableness, his own new concepts and techniques.

Of singular importance would be such a consultant's relationship to the small and medium sized office, the office which cannot afford to keep on its staff an expert in these matters. The small and medium sized offices find it hardest of all today to keep abreast of—and evaluate thoroughly—the continuous flow of new developments. With the help of our specialist the architect could devote more of his attention to his primary purpose; that of design.

The architectural research and design consultant would be esteemed for his professional independence. He would make it his task to be well-informed, to recognize the architect's primary responsibilities as a designer of environments, and, by sage counsel, cultivated good taste and industrial expertise, he could lure our construction industry and our architects towards a more profitable use of our era's potential. *SAK*

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JUNE 18-23 AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS: summer general meeting. Cornell University, Ithaca, N.Y. Write: Raymond C. Mayer & Associates, 51 E. 42nd St., New York 17, N. Y.

21-27 BUILDING RESEARCH INSTITUTE: summer program planning session. Wianno, Mass.

25-30 AMERICAN SOCIETY OF TESTING MATERIALS: national meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

26-28 AMERICAN SOCIETY OF REFRIGERATING ENGINEERS: annual meeting, Denver, Colo.

JULY 3-7 SIXTH CONGRESS OF THE INTERNATIONAL UNION OF ARCHITECTS: London (for full information write Secretary, Royal Institute of British Architects, 66 Portland Place, London W. 1, England).

4-7 NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS: annual meeting, Olympic Hotel, Seattle, Wash.

10-12 AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS: annual meeting, Harvest House, Boulder, Colo.

20-21 EXPANDED CLAY & SHALE ASSN.: mid-year meeting. Americus Hotel, Allentown, Pa.

AUG. 20-24 INTERNATIONAL CONFERENCE ON STRUCTURAL DESIGN OF ASPHALT PAVEMENT: sponsored by the department of Civil Engineering in cooperation with The Asphalt Institute, The University of Michigan, Ann Arbor, Mich.

SEPT. 3 INTRODUCTION TO EUROPEAN ARCHITECTURE TOUR: 30-day tour under the direction of Joseph Watterson, Editor of the "AIA Journal." For further information contact: Travel Abroad, Inc., Rm. 527, 550 Fifth Ave., New York 36, N. Y.

SEPT. 25-28 INDUSTRIAL BUILDING EXPOSITION & CONGRESS: New York Coliseum, New York City.

OCT. 6 SEVENTH ARCHITECTS' TOUR OF JAPAN: 24-day tour. For further information contact: Kenneth M. Nishimoto, AIA, 263 South Los Robles Ave., Pasadena, Calif.

NOV. 1-3 AMERICAN CONCRETE INSTITUTE: 14th regional meeting, Dinkler-Tutwiler Hotel, Birmingham, Ala.

14-16 BUILDING RESEARCH INSTITUTE: fall conferences, Shoreham Hotel, Washington, D. C.

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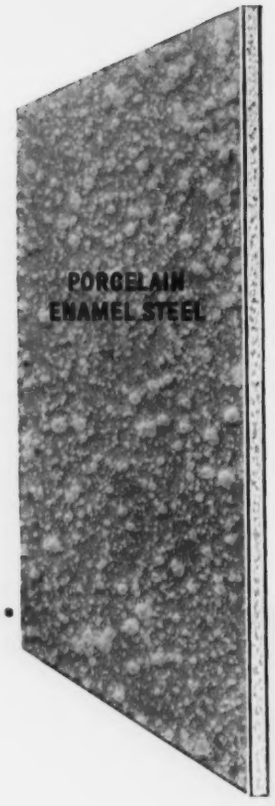

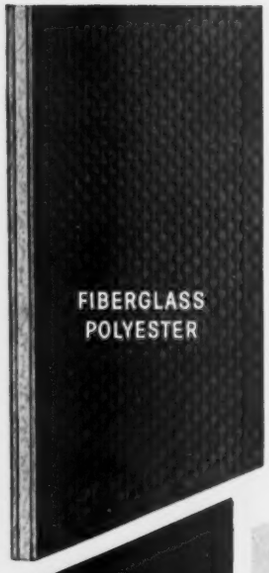

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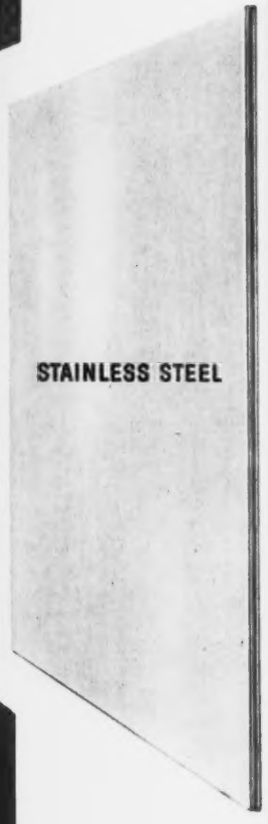

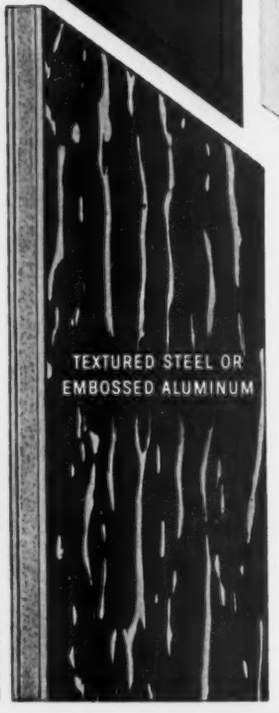

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